Medical Library

This Issue Exceeds 94,800 Copies

THE JOURNAL

OF THE

American Medical Association

Subscription, $7.00 | PUBLISHED WEEKLY | Single Copies, 25 Cents

VOLUME 95, No. 15 | 535 North Dearborn Street, CHICAGO, ILL. | OCTOBER 11, 1930

CONTENTS AND SUBJECT INDEX

Gallstones in the Ampulla of Vater. E. Starr Judd, M.D., and James M. Marshall, M.D., Rochester, Minn. 1061

Relation of Spleen to Jaundice. R. L. Payne, M.D., Norfolk, Va.....1064

The Clinical Significance of Jaundice. M. A. Blankenhorn, M.D., Cleveland 1066

Physiologic Disturbances Incident to Obstructive Jaundice: A Review. A. C. Ivy, M.D., Chicago....1068

Papers of Drs. Judd and Marshall, Payne, Blankenhorn and Ivy discussed by Drs. Mann, Horrall, Diamond and Blankenhorn.

The Menace of Mental Factors in Bodily Diseases. Cornelius C. Wholey, M.D., Pittsburgh....1073

Discussed by Drs. Barrett, Solomon, Sullivan and Wholey.

Hypothyroidism. Louis M. Warfield, M.D., Milwaukee.....1076

Discussed by Drs. Squier, Hensel, Lichtwitz and Warfield.

Intradermal, Scratch, Indirect and Contact Tests in Dermatology. Maximilian A. Ramirez, M.D., and Joseph Jordan Eller, M.D., New York 1080

Discussed by Drs. Eichenlaub, Hedge, Highman, Wise, Sulzberger, Rubenstein and Ramirez.

Relation of Infection of Ear and of Intestinal Tract in Infants. D. E. S. Wishart, M.B., Toronto....1084

Scurvy in Adults. Stacy R. Mettier, M.D.; George R. Minot, M.D., and Wilmot C. Townsend, M.D., Boston 1089

Pregnancy and Labor Complicated by Granuloma Inguinale. L. A. Wilson, M.D., Charleston, S. C...1093

Discussed by Drs. Gardiner, Culbertson and Tyson.

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Removal of a Teratoma from an Infant. Harold A. Rosenbaum, M.D., Chicago.....1095

Compression Myelitis with Posterior Luxation of Occiput. J. Clark Moloney, M.D., and Albert S. Crawford, M.D., Detroit.....1096

Sarcoma of Ovary in a Child Eight Years Old. Philip Jaisohn, M.D., Reading, Pa. 1097

Bronchiogenic Carcinoma with Cerebral Metastasis in a Patient with Kyphosis. Mitchell Bernstein, M.D., Philadelphia.....1098

EDITORIALS

Air Conditioning for Premature Infants 1100

The Cereals in Nutrition.....1101

CURRENT COMMENT

The So-Called Heart Hormone..1101

The Sugar in Pentosuria.....1102

The Bacteria Responsible for Uterine Sepsis 1102

Lipoid Histiocytosis.....1102

(Subject Index on next page)

ASSOCIATION NEWS 1103

Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Sec. 1103, Act of Oct. 3, 1917, authorized on June 14, 1918. If undeliverable, forwarding and return postage is guaranteed.

Copyright, 1930, by the American Medical Association.

NEXT ANNUAL SESSION, PHILADELPHIA, 1931

New—Arey's Developmental Anatomy

A revision so extensive, so thorough, so radical that the book is really **brand new.** Each chapter was replanned and rewritten; 435 additional new illustrations were added; a much fuller treatment of general development was given; a more complete discussion of specific malformations was included; and a number of new charts and tables. Wherever at all possible—and this has been found much more so than formerly—the **human embryo** has replaced, in the study, that of the lower animals. This edition stands today as an outstanding accomplishment in its field. It is a book of 560 pages, with 1037 illustrations on 532 figures.

Dr. Arey gives not only a complete descriptive text of embryology, but also a very practical laboratory manual. The first section treats of the early stages comparatively, and outlines clearly the course of prenatal and postnatal development. The second section traces the origin and differentiation of the human organ systems, grouping them according to germ-layer development. The third section consists of a laboratory manual for the study of pig and chick embryos.

Large octavo of 560 pages, with 1037 pages on 532 figures. By LESLIE BRAINERD AREY, Robert Laughlin Rea Professor of Anatomy, Northwestern University Medical School. Cloth, $6.50 net

Another NEW SAUNDERS BOOK on Page 3

SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "Ml," Medicolegal; "ME," Medical Economics.

A. M. A. Board of Trustees, minutes of meeting 1103
Scientific Exhibit, application blanks....1103
Acromegaly of L. P. Mark....1109
Adhesions, postoperative 1119
Affectepilepsy ab-1128
Air conditioning for premature infants..E-1100
Alcohol, ethyl, cause of dermatitis....*1082
formation in the body....1119
Ampulla of Vater, gallstones in....*1061
Anaphylaxis, sensitization tests....*1080
Anemia of scurvy *1090
simple, liver diet....ab-1140
Aneurysms of bronchial arteries....ab-1126
in cranium 1118
Arsenic in "cough drops"....1109
Artery, brachial, pressure in....ab-1136
uterine, perforation ab-1136
Arthritis, neuropathic, synovial fluid in.ab-1129
tuberculous, roentgen treatment....ab-1140
Association News 1103
Asthma in child....ab-1131
chronic intractable type....ab-1127
eosinophilia and 1119
skin tests in....*1080
Auricle, left, polypoid fibroma of....ab-1126
Bandage sign 1110
Banting Institute 1107
Bile, toxicity *1071
Bilirubin formation in spleen....*1065
Bladder tumors, production....ab-1139
Blood, chemical analysis ab-1130
chemistry in renal disease....ab-1127
clotting and calcium in jaundice....*1071
extravasated into body cavities....ab-1139
formation vs. vitamin C....*1089
pressure determinations 1118
pressure, high arterial, prognosis....ab-1127
pressure, high, epinephrine test in...ab-1125
pressure, high, essential ab-1133
reticulocytes in 1117
sugar, high, of diabetes vs. nephritis....1118
Body, professor bequeathes his to hospital..1110
Bone, experimental ossification ab-1137
marrow in scurvy....*1092
metallic osteosynthesis ab-1134
Book Notices 1121
Books Received ....Adv. page 34
Brain, encephalography in fixed lesions.ab-1126
Bureau of Investigation....1116
Camps for children....1111
Cancer, due to lack of magnesia in body fluids 1110
Cereals in nutrition....E-1101
Cerebrospinal Fluid, bicolored guaiac test ab-1132
Chondrodysplasia ab-1126
Cold air, urticaria from....*1082
Colon, ulcerated, perforation from barium.ab-1140
sympathectomy for megacolon....1112
Commonwealth Fund, rural health project..1105
Copernicus, prescription of....1114
Coracoid process, elongation....ab-1134
Cranium, aneurysm in 1118
Darley-Hartley, Dr. William, awarded gold medal 1113
Deaths 1115
Dementia Praecox, psychic treatment...ab-1130
Dentists, heart disease in....ab-1129
Dermatitis, "contact" *1081
Deutsche pharmakologische Gesellschaft...1114
Diet, mixed, for children....ab-1126
Digestion, leukocyte count during....ab-1135
Digestive Tract, congenital stenosis....ab-1140
Diphtheria, insoluble precipitates in....ab-1131
antitoxin, fatal shock after....ab-1128
decreases 1104
Disease, mental factors in....*1073
Dislocations, regional anesthesia....ab-1129
Ductus arteriosus, normal closing time.ab-1126
Duodenum, hemorrhages in perivisceritis.ab-1135
Ear, infection vs. intestinal infection....*1084
Edema, famine ab-1131
Empyema, irrigation and suction for....ab-1129
Endocrines and coxa vara....ab-1140
Eosinophilia and asthma....1119
Ephedrine, sensitivity to *1082
Epilepsy, laboratory studies in....ab-1127
affectepilepsy; hystero-epilepsy ab-1128
Epinephrine, intracardiac injection....ab-1136
in urethral applications....1112
test in hypertension ab-1125
Exercise, tetany after ab-1131
Exophthalmos, marked, in goiter....ab-1133
Famine edema ab-1131
Fats, eczematoid dermatitis from....*1083
Fetus papyraceus, ectopic....ab-1132
Fever, therapeutic, induced with sulphur in olive oil ab-1132
Fibroma, polypoid, of left auricle....ab-1126
Fish extracts, sensitivity to....*1082
Flit, dermatitis from....*1082
Foramen ovale, normal closing time....ab-1126
Foreign Letters 1109
Fractures, regional anesthesia in....ab-1129
apophyseal incomplete 1111
Fright: Proximate legal cause of....Ml-1123
Gallbladder colic *1066
calculi in Vater's ampulla....*1061
inflammation ab-1132
Glue, sensitivity to *1082
Goiter, Exophthalmic, postoperative results ab-1127
with marked exophthalmos....ab-1133
Government Services 1108
Granuloma inguinale in pregnancy....*1093
Hair, human, sensitiveness to....*1081
Hammond's mixture 1119
Harnack, E. H., x-ray martyr....1110
Health of worker of today....ab-1132
commissioners, new duty....1107
unit, sixth, dedicated....1105
Heart disease in professional men....ab-1129
electrocardiography in tachycardia....ab-1125
epinephrine injected into....ab-1136
exposed, excitatory process in....ab-1125
hormone E-1101
in jaundice *1070
Heliotherapy in England....ab-1132
Hemoglobinuria in new-born....ab-1131
Hernia sac, tumor formation in....ab-1139
Hip Joint, coxa vara....ab-1140
Histiocytosis, lipoid E-1102
Hospitals, additional approved....1120
practice, study of....1106
public and private differentiated....Ml-1123
Hypothyroidism *1076
Hysteria in bodily disease....*1073
Infant foods, buffer capacities....ab-1126
premature, air conditioning for....E-1100
Infections, synovial fluid in....ab-1129
Institute for Mental Hygiene....1107
"Interferential theory"....1113
Intestines, acute occlusion ab-1134
diverticulum, inflammation ab-1134
infection vs. ear infection....*1084
lack of bile in, in jaundice....*1070
Intradermal tests in dermatology....*1080
Iodine disinfection of skin....ab-1138
Iron, therapeutic use 1119
Jackson's Membrane 1119
Jaundice, clinical significance *1066
obstructive, physiologic disorders in....*1068
relation of spleen to *1064
Jugular Vein, resection, encephalic accidents after ab-1135
Keratosis, palmar mycotic....1111
Kidney calculi, treatment 1117
disease, postmortem blood chemistry in.ab-1127
disease, scoliosis ab-1138
left, rupture ab-1134
lipoid nephrosis ab-1131
tuberculosis, diagnostic errors in....ab-1135
Labor, granuloma inguinale complicating..*1093
Laboratories, additional approved....1120
Laryngitis, acute obstructive....ab-1126
Leukocyte count, low, during digestion.ab-1135
Leukopedesis, visceral ab-1135
Lipoid histiocytosis....E-1102
Liver damage in obstructive jaundice....*1068
Lung, amebic abscess....ab-1135
filling with contrast medium....ab-1138
lesions, in rheumatism ab-1131
massive collapse ab-1131
Magnesium, lack, in organism....1110
Malpractice: foreign bodies; rubber tip..Ml-1124
Mark, Leonard Portal, death....1109
Marriages 1114
Mastoid infections *1084
Measles, sero-attenuation, immunity....ab-1133
Medical Education, of Bantu native....1112
Medical Education, Registration....1120
Medicolegal 1123
Meetings, Coming Meetings....1124
Menopause, ovarian therapy 1119
Mental factors in disease....*1073
Metabolism, basal, vs. special breakfast.ab-1128
Milk, buffer capacities ab-1126
examined for B. abortus....1107
Neoarsphenamine dissolved in sodium thiosulphate 1119
Nephritis, decapsulation in....ab-1131
Neurosyphilis, familial ab-1134
News 1104
Newspaper, dermatitis from....*1082
Nutrition, malnutrition ab-1130
cereals in E-1101
of children ab-1126
of sick children ab-1126
Ostearthritis, tuberculous, treatment....ab-1135
Otitis Media vs. intestinal toxemia....*1084
Ovary, Krukenberg's tumor....ab-1134
Paralysis, General, of insane, malaria for.ab-1130
Patella, osteomyelitis 1119
Penicillium, green, sensitization to....*1082
Peptic Ulcer, acid neutralization in....ab-1127
Perivisceritis, digestive ab-1135
Physical Therapy ab-1135
Physicians, heart disease in....ab-1129
Pneumonia, oxygen rooms for....1104
Pneumothorax, syncope from....ab-1136
Poliomyelitis in Netherlands....ab-1140
Pregnancy, granuloma inguinale in....*1093
Prism-refractometer 1117
Pruritus, bath ab-1129
Pyrethrum dermatitis from "Flit"....*1082
Queries and Minor Notes....1117
Quinine sulphate, allergy after....ab-1137
Race, improvement of....1109
Radio Program 1103
Radium in New York hospitals....1106
Ragweed dermatitis *1082
Rayon, sensitivity to....*1082
Rectum cancer, radical operation....ab-1138
Reflex, Babinski, problems related to..ab-1137
Resorcinol, intracutaneous reaction....ab-1137
Rheumatism, pulmonary lesions in....ab-1131
Roentgen Rays martyr, E. H. Harnack....1110
Roentgenotherapy, sarcoma following...ab-1140
Salmonella type Dublin, infection due to.ab-1131
Sarcoma after roentgen treatment....ab-1140
Scalp, mixed tumors of....ab-1138
Scarlet Fever vaccination, value....ab-1138
Scurvy in adults *1089
Shoulder, habitual dislocation.ab-1134; ab-1138
Silk, sensitized to *1082; ab-1083
Skin, iodine disinfection ab-1138
tests in dermatology *1080
Society Proceedings 1124
Soda fountains, sanitation....1105
Sodium thiosulphate, arsphenamine dissolved in 1119
Sphygmomanometer, pressure in brachial artery under ab-1136
Spine, nephrogenous scoliosis....ab-1138
Spirochetes, evolution of....1110
Spleen, bilirubin formation in....*1065
hydatid cysts ab-1134
primary tuberculosis ab-1139
relation to jaundice *1064
rupture of ab-1134
State Board Examinations....1120
Stomach, acute dilatation....ab-1139
hemorrhages in perivisceritis....ab-1135
surgery, vaccination in....ab-1134
Sulphur in olive oil, pyrogenic action..ab-1132
Suture material, what happens to it?...ab-1139
Syncope, mechanism ab-1134
Synovial Fluid ab-1129
Syringes, pistons that stick in....1113
Tachycardia, paroxysmal ab-1125
Testis, correlation with other organs...ab-1135
Tetanus after gunshot wound....1117
cerebral, vaccination against....ab-1133
immunization ab-1131
Tetany after exercise ab-1131
experimental and postoperative....ab-1139
Therapeutics ab-1135
"interferential theory"....1113
Thrombosis, coronary ab-1125
Thyroid therapy in hypothyroidism....*1076
Tongue, tuberculosis ab-1139
Tonics and Sedatives....Adv. page 28
Tooth, abscessed, giant urticaria and angioneurotic edema from....*1081
Toxemia, intestinal vs. ear infection....*1084
Trachoma, prevention 1104
Trauma: detached retina attributed to..Ml-1124
Tuberculosis and uncinariasis....ab-1129
of abdominothoracic lymphatics....ab-1137
immunization, B C G in Kief....ab-1133
immunization, B C G intramuscularly.ab-1133
immunization, harmlessness of B C G.ab-1133
pulmonary, bone marrow in....ab-1136
pulmonary, cavitation ab-1130
pulmonary, chronic arterial tension in.ab-1137
pulmonary, intracutaneous reaction to resorcinol ab-1137
scholarship tour 1107
Tumor formation in hernial sac....ab-1139
Krukenberg's: origin ab-1134
Typhoid in Baltimore county....1105
antityphoid serum perfected....1113
Uncinariasis and tuberculosis....ab-1129
United Fruit Company, report....1108
Urethra, bipolar current for....ab-1130
applications, epinephrine in....1112
Urine, creatinuria and carbonuria....ab-1136
sugar in pentosuria....E-1102
Urticaria, skin tests in....*1080
Uterus cancer, per cent of cures with radiotherapy 1118
ectopic fetus papyraceus expelled after curettage ab-1132
sepsis, bacteria causing....E-1102
Varicocele, surgical treatment....ab-1137
Vegetable diet, nutrition of children on.ab-1126
Venereal Disease, campaign against....1106
Vital Statistics, birth rate, French colonies.1111
birth rate lowest on record, England....1110
Vitamin C in scurvy in adults....*1089
A, reserve, in females....1114
Vomiting, acetonemic, in children....ab-1139

BOOK BUYING SIMPLIFIED We supply new and standard medical works of all publishers
ONE ORDER—ONE REMITTANCE
GET OUR LATEST BULLETIN
CHICAGO MEDICAL BOOK CO. 436 S. Honore St. CHICAGO

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 95, NO. 15 CHICAGO, ILLINOIS OCTOBER 11, 1930

GALLSTONES IN THE AMPULLA OF VATER *

E. STARR JUDD, M.D.

AND

JAMES M. MARSHALL, M.D.

Fellow in Surgery, the Mayo Foundation

ROCHESTER, MINN.

The bile in passing from the liver to the intestine passes through a duct of more or less uniform diameter, which is suddenly narrowed at the point where it enters the duodenum at the papilla of Vater. Anatomically a stone would be most likely to meet resistance at this point in its passage down the common bile duct. Likewise at this point the flow of bile would be most easily obstructed. The average diameter of the opening at the tip of the papilla is about 3.5 mm. Just proximal to this opening is found the dilated pouch, approximately 1 cm. in diameter, into which the common bile duct and pancreatic duct usually empty. This is the so-called diverticulum or ampulla of Vater. Fenger, many years ago, described the symptoms of stone lodged in the ampulla, the "ball-valve stone of Fenger." Because a stone at this point causes a somewhat characteristic chain of symptoms, we decided to review a series of such cases seen at the Mayo Clinic.

A group of 160 cases was selected in which one or more stones were found in the ampulla at operation and in which other stones were not found in the hepatic or common bile ducts. In many other cases stones were found lodged in the ampulla, but they were associated with stones in other portions of the extrahepatic bile ducts; such cases were not included.

As would be expected, the majority of the patients were past middle age, the average age being 50 years; three fourths of the patients were aged between 40 and 60 years. The youngest patient was a boy, aged 15 years, who had a history of repeated attacks of typical biliary colic associated with chills and fever over a period of eighteen months, although he had never been jaundiced, according to his parents' observations. A diseased gallbladder containing multiple stones was removed. The common bile duct was found to be dilated, and a stone 5 mm. in diameter was removed from the ampulla.

The ratio of females to males was approximately 2:1, which is about the usual ratio of frequency of stones in the gallbladder, in the two sexes.

In 72 (45 per cent) of the 160 cases, one or more operations had been performed on the biliary system; in several cases as many as three or four operations had been performed: cholecystostomy, cholecystectomy or choledochostomy, or all three. In 55 per cent of the cases, relief had not been obtained and the patients continued to suffer from the symptoms that they had had prior to the operation. In 24 per cent of the cases there had been a period of complete relief following the operation, varying from three months to thirty years; in the remaining 21 per cent some relief had been obtained, but enough of their original symptoms persisted to induce the patients to seek further relief. Fifty-four patients had had cholecystostomy performed, thirty-three had had cholecystectomy, and seven had had choledochostomy. Seventeen (10.6 per cent) of the patients had external biliary fistula when they presented themselves for examination at the clinic, some of them for as long as two years.

SYMPTOMS AND DIAGNOSIS

In the diagnosis of stone in the common bile duct a thorough and complete clinical history usually offers the most useful clue to the diagnosis in spite of recent diagnostic refinements and laboratory aids. The most characteristic feature of stone in the common bile duct is the intermittent nature of the symptoms. Osler described the classic symptoms of stone in the common bile duct as paroxysms of colicky pain, chills and fever, and jaundice, followed by intervals of comparative or complete freedom from symptoms. Most patients suffering from stone in the ampulla of Vater present a history of intermittent trouble, although any one or more of these symptoms may be lacking. It is well known that a stone in the common bile duct may lie dormant for months or years without producing appreciable symptoms. The stone may then lodge against the wall of the duct or at the papilla, producing irritation of the mucous lining of the duct with inflammatory reaction and edema, occluding the duct around the stone and giving rise to biliary obstruction. This is the probable explanation of many of the attacks of colic. If there is infection, as there usually is in the bile behind the obstruction, symptoms of sepsis appear, and if the obstruction is more or less complete, jaundice becomes evident. We recently operated on a woman, aged 76, who presented all the classic signs and symptoms of stone in the common bile duct. The history in this case was that of only six months of repeated attacks of severe right upper abdominal colicky pain extending through to the back, associated with chills and fever up to 104 F. and followed by residual soreness and jaundice lasting from a few days to a week or two. During the eight weeks prior to admission the attacks had been frequent, each time with severe pain, chills and fever, and followed by jaundice; the succeeding attack would come before the jaundice had entirely cleared. The patient was jaundiced; the serum bilirubin was 8.5 mg., and the van den Bergh reaction was direct.

* From the Mayo Clinic.

* Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

During the period of observation in the hospital the jaundice subsided somewhat, and the flow of bile from the duodenum was moderately free. At operation the common bile duct was found to be about 2 cm. in diameter. A solitary stone 15 mm. in diameter was lodged in the ampulla. The gallbladder was almost completely destroyed.

Pain is the most common symptom of stone in the common bile duct. The pain usually is of the classic colicky type. In our cases the pain was either mild or severe in 155 of the 160 cases. In five cases a most careful examination could not elicit a history of pain of any kind. Many of the patients, especially after a long history of recurring attacks of colic, followed by a period of relative comfort, gave a history of several months of more or less constant dull pain in the upper part of the abdomen in addition to the attacks of colic. Jordan recently studied 106 cases of stone in the common bile duct at the Mayo Clinic. In six of these cases there was no history of pain at any time, and there were ten additional cases in which the onset of jaundice was painless. The attacks of colic were usually associated with a gastric disturbance: epigastric fulness, bloating, nausea and vomiting.

Intermittent jaundice was present in 117 (73 per cent) of our cases. It usually lasted a few days or a few weeks and was followed by a period of complete freedom. There were thirty-seven cases (23 per cent) in which a history of jaundice could not be elicited at any time during the course of the illness. Constant and apparently complete jaundice was noted in only six of the cases for a period of more than a month. There were seven patients who had been constantly jaundiced for one month or less at the time of admission and it was apparent that they had reported for examination during their first attack of jaundice. The serum bilirubin, as estimated by the van den Bergh test, gives a direct reaction and usually varies if the patient is kept under observation for a period of time. In our series the highest reading for serum bilirubin was 22.7 mg. in a case of apparent complete obstructive jaundice of five months' duration.

Symptoms of sepsis, as evidenced by attacks of chills and fever, were present in eighty-one (51 per cent) of the cases. In many of the cases the ague-like paroxysm was severe, amounting to rigor, with the temperature going to a peak of from 104 to 105 F., followed by a rapid decline.

Duodenal drainage, accomplished by the passage of a small soft Rehfuss tube in the duodenum, affords a valuable clue as to whether or not bile is passing from the duct into the duodenum. Bile was recovered on duodenal drainage in 83 per cent of the cases. In several of the remaining cases only one attempt at duodenal drainage was made and it is possible that further attempts at drainage might have recovered bile in a higher percentage of cases. Certainly in most cases of stone in the common bile duct, bile in varying amounts can be recovered from the duodenum if duodenal drainage is done repeatedly.

There was a definite group of cases of stone in the common bile duct in which the only characteristic symptom was severe colicky pain. An example of such a case is a woman who was recently operated on at the clinic. She was aged 57, and gave a history of typical biliary colic dating back twelve years. In the four years before admission, the attacks had been frequent; cholecystectomy had been performed elsewhere eighteen months before admission. There had been no jaundice prior to operation. Three weeks after operation she had a recurrence of colics, and they were more frequent and more severe, each requiring a hypodermic for relief. There never was a history of chills, fever or jaundice. At operation the common bile duct was found to be enlarged several times its normal size. It was thin walled and blue, and contained normal bile under tension. An irregularly shaped stone about 7 mm. in diameter was found lodged in the ampulla. No other stones could be found in the duct, and the probe passed freely into the duodenum.

OBSERVATIONS AT OPERATION

In 124 (77 per cent) of the 160 cases a single stone was found in the ampulla at operation. In fifteen (9.5 per cent) there were two stones and in twenty-one (13 per cent) there were more than two. The stones varied in diameter from 3 mm. to 2.5 cm. In 110 cases (69 per cent) there were stones in the gallbladder as well as in the ampulla; the stones in the gallbladder were found at the clinic, or a definite history was elicited of stones removed from the gallbladder at operation elsewhere. There were forty-two (26 per cent) cases in which a stone in the ampulla was the only stone present in the biliary system and there were eight cases in which a stone in the ampulla was the only stone found at the time of operation at the clinic, but we could not be sure that stones had not been removed previously elsewhere. In many of the cases the stone in the ampulla was found firmly lodged and adherent to the mucosa of the duct. In others the stone was small and round and apparently floating free.

As has been noted, the condition of the gallbladder at operation was frequently somewhat fibrous and contracted, often down to a small amount of fibrous tissue appearing as a small pouch protruding from the common bile duct. There were twelve cases in which there was a cholecysto-enteric fistula. In nine cases the fistula opened into the duodenum, in two cases into the colon, and in one case into the stomach.

In operating to remove stone in the ampulla, we make a longitudinal incision in the common bile duct near the point of entrance of the cystic duct and then explore the duct with a scoop, forceps or examining finger. This procedure was carried out in all but four of the cases in our series; in these, transduodenal choledochostomy was performed because the stone could not be removed by the other method.

It is not always easy to make a diagnosis of stone in the ampulla without opening the common bile duct. Because of the situation of the stone between the duodenum and the pancreas, it is difficult to palpate it even if it is of considerable size. Undoubtedly some of the stones would have been missed in our cases had not the common bile duct been opened on the strength of a history suggestive of trouble in the duct. Whether or not a stone can be palpated in the ampulla or common bile duct, it is advisable to open the duct and explore it, if there is a history of recurring chills, fever and jaundice, and if the common bile duct is found to be dilated at the operation. Although noncalculous intermittent biliary obstruction and strictures in the common bile duct may be the cause of persistent symptoms noted after cholecystectomy, many of the failures to relieve symptoms can be attributed to failure to remove a stone lodged in the ampulla.

During the years 1928 and 1929 we operated on 1,663 patients who had gallstones. In ninety-two (5.53 per cent) the gallstones were found only in the

common duct. One hundred and twenty-seven (7.6 per cent) had stones in both the gallbladder and the common duct. In the remaining 1,444 patients (86.83 per cent) the stones were found only in the gallbladder. Thus it will be seen that of the 1,663 patients, all of whom had gallstones, 219 (13.2 per cent) had stones in the common duct.

TECHNIC OF OPERATION

The first technical point to be considered in the operation is an incision sufficiently large to admit of the best possible exposure. Exposure of the operative field is more important in these operations than in almost any other. After the incision has been made and the packing off has been completed, the common bile duct should be freed as completely as possible so that the different technical steps may be carried out without danger of injury to other important structures.

When the duct has been exposed it is usually best to grasp it with two delicate Allison forceps. In certain cases it will be better to use the stone in the duct as a guide to the duct, holding the stone with the fingers of one hand, and making the incision through the duct down onto it. The opening in the duct should be large enough to admit the examining finger if the duct is dilated. A fairly large longitudinal incision in the duct can be readily repaired without a tendency to the formation of stricture. Not infrequently, a scoop or a probe will pass by a stone, giving the impression that there is no stone. However, when the duct is large enough to admit a finger, the likelihood of overlooking a stone is reduced considerably.

After the incision has been made in the duct, the bile, débris and loose stones should be gently sponged out and then all of the other free stones should be removed from the common and hepatic ducts as gently as possible. We are certain that considerable harm can come from too vigorous irrigation of the bile ducts, although several times we have been able to flush stones out of the ducts of the liver that probably could not have been removed in any other way.

Removal of the stone or stones from the ampulla is best accomplished by first passing a scoop into the ampulla, then guiding the scoop with the fingers outside the duodenum, gradually manipulating the stone until it is crowded into the hollow of the scoop and holding it in this position as the scoop is gradually withdrawn. We find that the surest way to palpate a small stone in the ampulla, especially when the surrounding pancreatic tissue is swollen, is to pass as large a probe as will comfortably fit into the common bile duct gently down into the ampulla, and then to palpate the ampulla, leaving this instrument in place as a guide. In many cases the duct is greatly elongated, and there may also be considerable enlargement of the head of the pancreas, which makes it difficult to locate the ampulla even when there is a fair-sized stone in it. One of the best instruments for locating the ampulla and also for demonstrating whether it is open or not is a large curved hemostat. We have frequently been able to pass such an instrument into the duodenum when nothing else would go through the ampulla.

We realize how difficult it is to be sure that all stones have been removed. Occasionally they will be overlooked when the greatest care has been exercised, and in some instances they will reform. We do not feel that efforts to clear out all calculi should be carried to the point of too great trauma to the tissues. We have seen one case of stricture following removal of stone from the ampulla. Apparently this rarely occurs, but severe infection may follow energetic probing and dilating. If the gallbladder has been removed or destroyed, the activity of the sphincter at the ampulla will be overcome so that there will be free passage for small stones or débris into the duodenum. We believe that it is far more important to provide prolonged drainage by T-tube in these cases of stone in the ampulla than it is to dilate the passage into the duodenum forcibly. Drainage of the duct should always be carried out after removal of stones from the ampulla, and this is best done with the Deaver T-tube. By this method, complete control is obtained of the flow of bile after the wound has healed around the tube. If the lower end of the duct is opened widely, then bile will pass through the tube into the duodenum, whereas if the ampulla is closed from swelling or any other cause, the bile escapes to the outside through the long arm of the tube. Often when bile is needed for the welfare of the patient it may be forced into the duodenum by clamping the outside tube. Another advantage of this plan of drainage is that this tube may be used as MacArthur suggests, for the administration of fluids, dextrose and any form of liquid nourishment.

In our group of 160 cases of removal of stones from the ampulla, there were eleven deaths, a mortality of 6.8 per cent. In four cases in the series a transduodenal operation was performed; this method was used because it did not seem possible to remove the stone through an incision in the common bile duct. In all of the four cases the common bile duct was first opened and an attempt was made to remove the stone through that incision. Failing to get it in this way, the duodenum was opened and the stone was removed through the duodenum. We now believe that it is always possible to remove stones from the ampulla through an incision in the common bile duct, and that operations through the duodenum are seldom necessary and are carried out at a considerably higher risk. We have not, however, attempted to perform the operation just as McBurney described it.

ILLUSTRATIVE CASES

CASE 1.—A man, aged 58, came to the clinic, May 30, 1929, complaining of recurring attacks of severe pain in the upper part of the abdomen. Twenty-two years previously, he had had a severe attack of colic, followed by jaundice. The colic recurred at infrequent intervals until operation was performed elsewhere in April, 1928. Cholecystostomy was done and stones were removed from the gallbladder. The wound drained for three and a half weeks, and then closed. The patient was then well until six weeks before admission, when he had had a severe typical attack of gallstone colic, and one week later he noticed dark urine and clay-colored stools. During the three weeks prior to admission he had had three attacks of upper abdominal pain with chills and fever, the last one, with jaundice, ten days before admission. Otherwise, he had a rather typical history of peptic ulcer dating back eight or ten years, with pain coming on from two to three hours after meals, relieved by taking food or alkaline powder.

The patient was somewhat emaciated, and weighed 23 pounds (10 Kg.) less than his usual weight. He was faintly jaundiced; the serum bilirubin was 4.3 mg. for each 100 cc., and the van den Bergh reaction was direct. Tenderness was elicited in the right upper part of the abdomen. The blood urea was 34 mg. for each 100 cc. Roentgenograms of the stomach and duodenum showed duodenal ulcer. All other laboratory examinations were negative.

At operation, June 6, the gallbladder was found to be somewhat distended but did not contain stones. The common bile duct was opened and was explored with a scoop, but stones were not found. The scoop passed readily through the

ampulla into the duodenum. There was a large subacute duodenal ulcer on the anterior surface of the duodenum. The patient's general condition was not good, so a rubber catheter was stitched into the jejenum after the method of Witzel instead of gastro-enterostomy. The catheter was brought out through a stab wound in the left rectus abdominis muscle. A Mayo-Robson hepaticus drain was left in the common bile duct and a dressed tube was left in the gallbladder.

During the first three days after operation, there was drainage of rancid, sour-smelling, thin, flocculent bile-covered fluid, 1,175, 1,530 and 1,425 cc., respectively. Methylene blue (methylthionine chloride-U. S. P.) given by mouth appeared copiously in the drainage material. Examination of the material showed the presence of a large amount of starch-splitting enzyme. On the third day the blood urea was 67 mg. and on the fourth day 74 mg. for each 100 cc., and the patient appeared extremely ill. The margins of the wound were reddened and irritated from contact with the drainage material. On the fourth day the end of the Mayo-Robson drain was connected directly with the jejunostomy tube so that the fluid draining from the common bile duct poured directly back into the jejunum. The patient was given fluids in abundance, including physiologic solution of sodium chloride intravenously, 2,000 cc. daily. He seemed to improve but on the seventh day bronchopneumonia developed and he died on the eleventh day.

At necropsy the Mayo-Robson tube was found in place in the common bile duct. There was slight necrosis of tissue around the tube as it coursed over the duodenum. The common bile duct was 12 mm. in diameter and there was a stone, 6 by 8 mm., impacted in the ampulla. The pancreatic duct entered the common bile duct 1 cm. above the sphincter of Oddi and therefore proximal to the impacted stone. Other stones were not found in the ducts or gallbladder. A large subacute ulcer on the anterior surface of the duodenum and two smaller ulcers on the posterior wall were found. The lungs showed extensive bilateral bronchopneumonia.

CASE 2.—A woman, aged 68, admitted to the clinic, March 30, 1930, gave a history of recurring attacks of upper abdominal colic dating back twenty years, each attack with a sudden onset and requiring hypodermics for relief. There had never been any chills, fever or jaundice prior to cholecystostomy, which had been done elsewhere five years before admission. At the time of operation the gallbladder was drained and many stones were removed. After the operation she had a rather slow convalescence. The sinus remained open intermittently for several months, but then it closed and the patient was well for one year. Then she had a recurrence of the colicky attacks similar to those she had had before the operation, but in each case they were followed by a period of mild jaundice for from two to ten days.

On examination the patient was found to be rather obese and to have moderate benign hypertension. The blood pressure was 220 systolic and 120 diastolic. There was slight tenderness in the epigastrium. Duodenal drainage showed ample bile on two occasions. The serum bilirubin was 4.1 mg. for each 100 cc., and the van den Bergh reaction was direct. A flat roentgenogram of the area of the gallbladder was negative. There were slight changes in the electrocardiographic tracing, but there were no signs of cardiac decompensation. The coagulation time was eight minutes.

At operation the gallbladder was contracted and completely destroyed. The common bile duct was dilated and a single stone 1 cm. in diameter was lodged in the ampulla. There was a moderate amount of cholangeitis. The gallbladder was easily removed, a stone was removed from the ampulla and a T-tube was sutured into the opening of the common bile duct.

Following the operation the T-tube drained freely, but on the fourth postoperative day there were signs of cardiorenal insufficiency and the blood urea was 124 mg. for each 100 cc. Fluids were injected intravenously, and the blood urea promptly returned to normal. By the twelfth day the jaundice had cleared and clamping of the tube was begun. On the twenty-eighth day the T-tube was removed without difficulty. At that time the general condition of the patient was good; she was free from jaundice and there was ample bile in the stools. Following the removal of the T-tube the sinus healed in twenty-four hours, and recovery was complete.

CASE 3.—A woman, aged 44, admitted to the clinic, March 9, 1930, gave a history of having had rather typical attacks of gallbladder colics frequently during the preceding year, several of which were followed by dark urine and light stools; after one attack three months before admission, definite jaundice was present. Nine weeks prior to admission she was operated on elsewhere and the gallbladder was removed and was reported to be infected, but without stones. After the operation she did not have colic, but the stools continued to be light-colored and there was a persistent biliary sinus through the operative wound. One week before admission this sinus stopped draining and the patient had since had pain across the upper part of the abdomen, nausea and vomiting, and jaundice.

On examination it was found that the patient was moderately jaundiced. The serum bilirubin was 4.9 mg. for each 100 cc., and the van den Bergh reaction was direct. The coagulation time was eight minutes. There was moderate anemia; the hemoglobin was 65 per cent and the erythrocytes numbered 3,520,000. There was a small sinus in the operative incision in the right upper quadrant of the abdomen which, at the time of examination, was not draining. The temperature was normal.

On duodenal drainage on several occasions following admission, a fair amount of normal-appearing bile was recovered from the duodenum. During the six days' observation in the hospital before the operation, the patient felt better and the jaundice subsided somewhat.

At operation the sinus tract led down to a good-sized remnant of the lower end of the gallbladder. The common bile duct was dilated and a stone 1 cm. in diameter was removed from the ampulla. It was thought that a probe passed through the ampulla into the duodenum, and normal-appearing bile came from the common bile duct. There was mild hepatitis and mild biliary cirrhosis. A T-tube was sutured into the common bile duct, and the remnant of the gallbladder was removed.

The postoperative convalescence was entirely uneventful. The T-tube drained freely from 500 to 700 cc. of normal-appearing bile each twenty-four hours. Clamping of the tube was begun on the fourteenth day and was continued progressively until the tube was removed on the twenty-eighth day. At that time the patient was entirely free from jaundice, the stools were of good color and her general condition was good. The sinus, following the removal of the T-tube, healed within forty-eight hours, and recovery was complete.

RELATION OF THE SPLEEN TO JAUNDICE *

ROBERT LEE PAYNE, M.D.
NORFOLK, VA.

In a consideration of the relation of the spleen to jaundice it must first be borne in mind that the erythrocyte is the chief source of hemoglobin from which the formation of bile pigments must originate. Therefore, the relation of the normal and the pathologic spleen to red blood cell destruction is the hub around which the entire discussion must revolve.

The spleen may destroy red blood cells by an intracellular process which is dependent on the action of the macrophages or by an extracellular action which must be distinctly a lytic process.

The formation of bile pigments in the spleen must be dependent on a definite splenic hemolysis, but to argue a hemolytic function for the spleen based on the blood picture of splenectomized animals encounters difficulties that cannot be surmounted.

In the presence of jaundice associated with a large spleen one is at once confronted with the fact that there is both an intrahepatic and an extrahepatic formation of bile pigments. The extrahepatic source of bile pig-

* Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

ment is in the reticulo-endothelial system, of which the spleen probably plays a minor part, while the bone marrow is really the chief depot for bilirubin formation. In a careful review of the literature there is nothing to confirm a controlling influence of the spleen on the formation of bile pigments in the liver, and all researches make the the conclusions most doubtful.

Mann [1] has shown that the large proportion of bilirubin in the blood is formed in the bone marrow; hence, in the discussion of the spleen in its relation to jaundice, it at once becomes necessary to consider the relation of the spleen to the bone marrow. It is a rather generally accepted idea that the blood picture after splenectomy indicates that the bone marrow has partaken of a resulting stimulation. This conviction follows the increase in red blood cells, normoblasts and blood platelets, and especially convincing is the presence of Howell-Jolly bodies in the red blood cells. Equally interesting is the consideration of the reticulocyte count in the presence of hemolytic jaundice and obstructive jaundice. In familial hemolytic jaundice and in sickle cell anemia there is a high reticulocyte count at all times. In hemolytic jaundice (not familial) the reticulocyte count shows only a moderate increase, while in obstructive jaundice there is no increase of reticulocytes and no increased fragility of the red cells. However, it does not theoretically follow that a normal or pathologic spleen has any inhibitory action on the bone marrow. Lauda [2] says that the changes in the red blood cell count after splenectomy cannot be interpreted by the exclusion of the spleen and, further, that destruction of red blood cells in the spleen has not been proved for, so far, it has not been established that the efferent blood in the splenic vein contains fewer red blood cells than the afferent blood to the organ through the splenic artery.

Barcroft [3] ably reasons that irritation of the bone marrow after splenectomy is due to the reduction of the organism's total hemoglobin content and is comparable to the state of acute anemia from massive loss of blood which is generally conceded to produce bone marrow stimulation as evidenced by the blood picture. Barcroft holds that the spleen is merely a large depot of hemoglobin which empties by contraction and that the entire depot supply is summarily depleted by splenectomy. If Barcroft's conclusions are to be accepted then there is at once some basis of explanation for the source of abnormally large amounts of bile pigment in pathologic hypertrophy of the spleen and can thereby theoretically account for a definite relationship of the enlarged spleen and the presence of jaundice. With further reference to the relation of the spleen to the bone marrow one must consider the question of reduced resistance of the red blood cells in the presence of a pathologic spleen, for it is well established, beyond contraversion, that the resistance of the red blood cells is invariably increased after splenectomy, whether the organ is normal or pathologic. Further, it is well known that this increased resistance of the red blood cells persists for many years after splenectomy. However, as an argument against the spleen alone and contending for the relation of the spleen to the bone marrow, it may be added that the difference in the resistance of the red blood cells in the splenic vein and the vascular supply of other regions has not been proved.

Following Barcroft's conclusions that the spleen is a depot for hemoglobin or a storehouse of iron deposit, one can again find some justification for the so-called clinical syndrome of splenic jaundice as follows: In both physiologic and pathologic conditions it is known certainly that the red blood cells are broken up in the peripheral circulation. The first step in this process is most probably due to aging of the cells and the resulting products are hemoglobin, stroma and iron pigment which the German workers designate as Schlacken. This slag is taken up by the spleen and in the presence of exaggerated function or hypertrophy there may be a failure of the cellular activity or the filter function of the organ and thereby pigments may escape into the general circulation and be deposited as jaundice. Lauda says that normally this would be a passive rôle of the spleen but in disease condition with hypertrophy the process would probably be an active one.

BILIRUBIN FORMATION IN THE SPLEEN

There are many researches which justify the conclusion that under physiologic as well as under certain pathologic conditions the spleen influences the production of bilirubin. There are may ways by which the spleen may influence the process of changing the red blood cells into bilirubin, yet knowledge in this respect is defective. It may, however, be concluded with certainty that the spleen has an active part in the destructive metamorphosis of blood but it must be conceded that the spleen in some measure produces bilirubin which is derived from the products of hemoglobin and stroma following decomposition or fragmentation of the red blood cell. This can hardly be called a hemolytic process since lysis is often completed in the peripheral circulation before the red blood cells reach the spleen, thus accounting for the destruction of hemoglobin in the spleen.

McLeod and Pearce [4] state that the blood of the splenic vein contains more bilirubin than arterial blood. These authors also state that the veins of the bones contain more bilirubin than arterial blood. To support this contention Haldeman,[5] by the berlin blue method of identifying iron-containing pigment, concludes that the greater percentage of bilirubin is formed in the bone marrow while the liver, spleen and lymph nodes play a lesser rôle in this production.

It has been repeatedly stated in literature that the jaundice of hemolytic icterus disease is not a true jaundice but is due to the deposits of hemosiderin in the tissues. Stanley Cooke has demonstrated that hemosiderin is identical with ferric hydrate and results from changes of iron deposited in the splenic sinuses. Iron is liberated by the breaking down of hemoglobin into bilirubin; and, since it is known that the iron content of the spleen is fairly constant, Barcroft's conclusions may be concurred in that the spleen is merely a storage depot for iron until this is again utilized in the building up or formation of new hemoglobin. Barcroft states that hemosiderin is found in the splenic sinuses as a brown or blackish material and is expelled into the general circulation each time the spleen contracts. He further states that he has never seen it in the splenic artery but that it constantly occurs in the splenic vein.

1. Mann, F. C.: The Extrahepatic Formation of Bilirubin, in Asher, L., and Spiro, K.: Sonderdruck aus Ergebniss der Physiologie, München, J. F. Bergmann, 1925, vol. 24.
2. Lauda, E.: The Problem of Splenic Hemolysis, Ergebn. d. inn. Med. u. Kinderh. **34**: 1-110, 1928.
3. Barcroft: The Spleen and the Circulation, Proc. Staff Meet., Mayo Clinic **4**: 302 (Oct. 9) 1929.
4. McLeod, J. J. R., and others: Physiology and Biochemistry in Modern Medicine, ed. 5, St. Louis, C. V. Mosby Company, 1926, pp. 90-93
5. Haldeman, K. O.: A Histologic Study of the Formation of Bile Pigment, Arch. Path. **7**: 993-1011 (June) 1929.

In the light of present knowledge I think that I am forced to conclude that the pigmentation of hemolytic icterus is due both to hemosiderin and to bilirubin, which, being excessive in the general circulation, is deposited into the tissues. Associated with the splenic enlargement of hemolytic icterus and pernicious anemia there is always associated hyperbilirubinemia which cannot be explained as entirely splenic in origin, for the failure of the liver to filter and deliver this excess of bilirubin must have a most important bearing on the condition of so-called splenic jaundice.

McNee's [6] classification of jaundice into three types lends a plausible explanation to this problem of splenic jaundice. In his third classification he states that the jaundice is due to an excessive load of the products of blood destruction which the polygonal cells of the liver are unable to handle and as a result of this faulty transmission the bile pigments are taken up by the hepatic veins and are thus carried into the general circulation. One may accept the condition of hemolytic icterus as an entity which would fairly represent the various pathologic conditions of the spleen in which so-called splenic jaundice is known to exist. However, one is forced to conclude from all of the studies of this problem that hemolytic jaundice is a disease of the entire hematopoietic system and the source of jaundice is not only from the spleen but also from the liver and bone marrow, and the good effects of splenectomy in this condition can probably be explained as follows:

The pathologic spleen delivers its blood (containing large amounts of pigment) directly and in large amounts to the liver, and the polygonal cells are unable to filter the excessive load put on them. After splenectomy this excessive load on the liver is lifted, yet destruction of the red blood cells continues to take place, not only in smaller quantities but in remote areas, such as the bone marrow and other remaining parts of the reticuloendothelial system. However, these products of red blood cell destruction, coming from areas remote from the liver, reach this organ by a longer and slower route and probably in a much less concentrated form; hence the liver cells are better able to deliver the pigments into the bile ducts.

CONCLUSIONS

From a correlation of research facts taken from the literature up to the present date, I think that I am justified in concluding as follows:

1. A certain amount of red blood cell destruction takes place in the spleen.

2. A certain amount of bilirubin is formed in the spleen.

3. The amount of red blood cell destruction and bilirubin formation in the spleen is relatively small as compared with the consummation of these functions elsewhere in the body.

4. That hyperbilirubinemia associated with dysfunction of the spleen is dependent on not only the spleen but the entire hematopoietic system must be considered as an important contributing factor in evaluating the relation of the spleen to jaundice. Particularly must it be remembered that there is commonly associated a hepatitis in which failure of the liver cells to filter bile pigments represents an active rôle in the production of the jaundice.

142 York Street.

6. McNee, J. W., and Prusik, B.: Discussion on Jaundice, Brit. M. J. 2: 495 (Sept. 20) 1924.

THE CLINICAL SIGNIFICANCE OF JAUNDICE *

M. A. BLANKENHORN, M.D.
CLEVELAND

The clinical significance of jaundice has been the same for the past twenty years or more. Jaundice should have no different meaning in the eyes of the surgeon than it has for the physician. The first question occurring to any one contemplating the jaundiced patient regardless of all else should be, Is there stoppage of the bile ducts? When this query cannot be answered in the affirmative, jaundice becomes a medical problem and the physician proceeds to make hard work of its solution. As long as the physician continues to classify his nonsurgical jaundiced patient by old fashioned and established methods, his job is not so difficult. He makes it easy by the use of convenient names such as catarrhal jaundice, infectious jaundice or icterus gravis as determined by certain more or less related symptoms.

Whenever the physician undertakes a rational study of the patient and attempts to speak of this disease in pathologic physiology, study lags for want of methods; and although words are present to speak in physiologic terms, ideas are very scanty. The physician makes his job harder still because of what he knows in an incomplete way about the association of jaundice with blood diseases. Charged with that responsibility of those half known facts he has set himself to a lot of testing of the blood and the bile, none of which work, unfortunately, helps the patient very much. From this welter, the physician has not yet been extricated. Although the physiologist and the pathologist have in recent times thrown great light on the problem of the formation of bile pigment and on certain functions of the liver, little has developed to help the surgeon with his question about stoppage of the ducts. After all, whether to physician or to surgeon, the first and most important significance of jaundice is the possibility of stoppage of the ducts. The principal topic of this paper, then, is obstructive jaundice.

To make a diagnosis of obstructive jaundice, one of the three common procedures is generally followed: 1. If there is a history of colic, one argues from cause to effect and says that the stone that causes colic obstructs the duct. 2. Tests for liver disease or tests of liver function can be done, and the finding of liver disease or disordered function excludes obstruction by substituting another cause. 3. The symptom of jaundice can be studied to see whether obstruction of the ducts alone could give such a distribution of bile pigment.

As to the first procedure, nothing more need be said, because the issues are simple. As to the second—the liver tests—much has been said because the issues are obscure, not because any of the tests are especially helpful. I do not refer here to cholecystograms by Graham's method. These tests, being for gallbladder function, are to be classed with the history of colic in simplicity and clearness. This method of study, which has become the most valued of all, unfortunately cannot be used when jaundice has fully developed.

All other dye tests apparently cannot be used when jaundice is present, or if they are used the dyes are disposed of by the liver in the same manner as is bile

* From the Medical Department of Lakeside Hospital and Western Reserve University.

* Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

pigment. The new dye described by Evarts Graham may be an exception.

As to other tests, no examination of the blood serum can explain the mechanism of jaundice even so far as to say whether the ducts, the liver capillaries or the extrahepatic pigment formation is at fault.

The van den Bergh tests have designated and still are said by some to designate the part of the mechanism at fault. Since the van den Bergh test continues to be lugged along in the journey of medical progress as baggage of possible value, I will not dispose of the test with a single gesture.

This very promising test was originally claimed to detect in the blood bile pigment which had been formed outside the liver and which had not yet been passed through the liver filter. In this instance, the reaction was said to be indirect and indicated jaundice due to excess or anomalous extrahepatic pigment formation. The method might also indicate jaundice when extrahepatic pigment formation was normal, but the liver filter, being disordered, was incapable of removing this normal product so that an intrahepatic jaundice resulted—likewise the "van den Bergh indirect." Whenever, on the other hand, normal pigment from its usual source, wherever that might be, had successfully passed the liver filter but was collected into obstructed ducts and again taken up by the circulation to cause jaundice, "the van den Bergh direct" was the resulting reaction. This was necessarily classed as obstructive or intrahepatic jaundice—the sort under consideration here.

There can be no doubt that the van den Bergh test results in several reactions, sometimes direct and other times indirect, but there is now no good reason to believe that the direct reaction is caused solely by bile pigment that has passed the liver and then got back into the blood by some means as a result of obstruction, nor is there reason to say that the indirect reaction is caused by bile pigment of a peculiar sort that has not yet gone through the liver filter. Too many exceptions have made the theory of the two kinds of pigment not acceptable, and furthermore other good explanation is found for the two sorts of tests. Numerous writers have reported that the van den Bergh direct reaction is found when bile pigment appears in the urine, and the indirect reaction only when pigment remains in the blood and cannot get into the urine. Others, in harmony with this, go further and say that pigment in simple solution in the blood gives the direct test, while pigment combined as with protein gives the indirect, but that the combined state is not due to the hepatic or intrahepatic origin of the disease but to certain factors inherent in the blood itself that permit the combination.

In other words, bilirubin being a pigment in simple solution is quite capable of staining the tissues more or less persistently, and the blood protein merely takes up the stain and holds it. This staining depends in part on the time and the intensity of the process; it may be modified by bile salts or by other substances in the blood, and it can be reproduced in vitro. At most, the van den Bergh test is a good substitute for examining the urine for bilirubin, only it is much harder to do.

In a recent article by Schiff,[1] describing one of the most extensive applications of the tests, there was apparently no exception among 327 normal persons and patients that the van den Bergh direct reaction occurs with jaundice and bilirubinuria and that the indirect reaction occurs with jaundice with no bilirubinuria, regardless of the pathogenesis of the jaundice. Schiff also reports the direct test—supposed to be due to obstruction of ducts—in all his jaundiced lobar pneumonia patients, in all his catarrhal jaundice patients and in eight out of sixteen patients with cirrhosis of the liver.

Time ought to settle the value of the van den Bergh test; but now that textbooks are including it for the sake of being complete, a long time may be needed. Furthermore, I think it is no exaggeration to say that the newer physiology of bile pigment and liver function written by Mann and his associates, brilliant as it is, has not yet been usefully applied in the clinic to the first question of jaundice; namely, the diagnosis of obstruction.

The third course mentioned—the study of the distribution of bile pigment to see whether stoppage of the ducts alone could explain the jaundice—requires relatively simple laboratory methods. Their very simplicity has impeded their popularity, but the icteric index and the examination of duodenal contents and of feces are simple and of good repute when properly interpreted.

The icteric index is little disturbed by other pigments such as carotin, for carotinemia rarely occurs to a significant degree. With the simple expedient of clearing cloudy specimens by extraction with acetone, they can all be read accurately and easily.

The examination of duodenal contents for biliary pigments is enormously valuable, and so is the examination of feces and urine. Although no satisfactory quantitative methods for duodenal contents or feces and urine are available, quantitative measurements of blood together with qualitative tests on the excreta give evidence about the distribution of bile pigment—such evidence as is necessary to a diagnosis of obstruction. These methods together with certain facts about the physiology of bile pigment make up a useful laboratory study of jaundice, quite in contrast to tests.

What are the main facts in bile pigment physiology that must be considered? Bilirubin is formed in the bone marrow and in the liver, probably in fairly constant amounts,[2] perhaps increased with the total metabolism but not appreciably diminished by any known physiologic process. Bilirubin is present in small amounts in circulating blood, in combination with protein. In this state it does not pass through the kidney to appear in the urine. Whenever there is sudden and marked increase in bile pigment formation, such as occurs in transfusion reactions with hemolysis, there is diffusion of pigment into the tissue (jaundice) and filtration through the kidney (bilirubinuria). Also, whenever there is not prompt passage of pigment through the liver, such as in arsphenamine poisoning of the liver, there is jaundice and choluria. Likewise, when there is good enough filtration, but stoppage of the ducts, there is jaundice and if the blood saturation is great enough there is choluria. When blood and tissues have been stained they remain stained an appreciable length of time according to the degree, and I think somewhat according to the length of time the staining has existed. When blood proteins have combined with pigment, that pigment does not appear in the urine. Bilirubin is excreted by the epithelial cells of the liver, stored in the gallbladder by a process of concentration, or drained into the intestine, where pigment is quickly

1. Schiff, Leon: Serum Bilirubin in Health and in Disease, Arch. Int. Med. **40**: 800 (Dec.) 1927.

2. McMaster, P. D.; Broun, G. O., and Rous, Peyton: Studies on Total Bile, J. Exper. Med. **37**: 395 (March) 1923.

changed by bacterial action to urobilinogen, a part of which is absorbed by lymphatics and portal vein, a part is degraded further to unrecognizable form, and a part is excreted in the feces as urobilinogen.

Although all these facts are now commonplace and the icteric index and other methods have been more or less in vogue, it is remarkable how little information about obstructive jaundice has accumulated—information about what happens when the ducts are stopped and bilirubin accumulates. Such knowledge as could be had from the icteric index, duodenal contents and feces in relation to colic would be of great value in many of the clinical problems that arise.

It seems to be customary that, when it is known that a patient has stoppage of the ducts, no further study of his distribution of bile pigment is made. Valuable studies have been made by Rous,[3] by Walters [4] and by others, but elementary facts about stoppage are not now available. How quickly after stoppage in man does the icteric index rise? How long before choluria develops? How long before the stool is clay colored? Will the icteric index reach a level and remain so; that is to say, will the kidneys be able to keep jaundice at a constant level, and if so at what level? Does complete stoppage inhibit the formation of bile pigment? Does icterus ever become so severe as to stain duodenal contents by diffusion through mucous membranes? When obstruction is relieved, how quickly does the index fall? How quickly does the urine clear? How does intermittent obstruction affect the distribution of pigment? How does partial obstruction affect it? In proposing these queries, I am assuming that stoppage can be accurately gaged as to onset, completeness, intermittence and relief.

Such knowledge about stoppage is often not certain; but when it is, few accurate observations are recorded, for it is the custom of surgeons to operate and relieve stoppage, not bothering about the jaundice once its significance is clear. Consequently there is some knowledge about the distribution of bile pigment, but there is not the exact information necessary to an understanding of the patient whose stoppage is within the liver itself, or whose stoppage is associated with disease of the liver as well.

It is well known that there is a reciprocal relation between bile in the duodenum and bile in the blood—which is another way of saying that acholic stools occur simultaneously with jaundice. It is also known that when the storage function of the gallbladder is intact there is a brief delay in the onset of jaundice. But in the main the problem in each case is decided by the history of colic or by feeling the enlarged gallbladder. This is a sure enough way usually, when such information is at hand, but without it there is no way to get the facts.

The differentiation between painless jaundice due to stone and catarrhal jaundice is often impossible; likewise the recognition of arsphenamine jaundice when there has been abdominal pain. No progress in the problem is in sight, if all the measuring and testing are done in the obscure and doubtful cases. It is clearly the duty of the surgeon to write more about obstructive jaundice to aid in the problem. I see no help from the physician who seldom handles obstructive jaundice. I see no help from the physiologist or the biochemist. It is chiefly my aim in this paper to emphasize the value of methods as they now stand; viz., the icteric index and the examination of duodenal contents and feces, when applied to clear-cut and uncomplicated obstructive jaundice. With better information of the common, one can hope to deal with the uncommon. Instead of the surgeon receiving help from the physician in the problems of jaundice, it is clearly the duty of the surgeon to furnish this help to the physician.

3. McMaster, P. D.; Broun, G. O., and Rous, Peyton: Changes Caused by Pressure Obstacle to Secretion, J. Exper. Med. **37**: 685 (May) 1923.

4. Walters, Waltman; Greene, C. H., and Frederickson, C. H.: The Composition of the Bile Following the Relief of Biliary Obstruction, Ann. Surg. **91**: 686 (May) 1930.

PHYSIOLOGIC DISTURBANCES INCIDENT TO OBSTRUCTIVE JAUNDICE

A REVIEW *

A. C. IVY, PH.D., M.D.
CHICAGO

Medical history reveals that the problem of the jaundiced patient is an old one. It occupied a prominent place in ancient Hebrew and Arabian medicine, and this symposium signifies that the problem is not yet solved. Although tremendous progress has been made in the surgery of obstructive jaundice, the same cannot be said regarding the physiologic disturbances. Considerable work has been done and progress made, but the problem has not received the attention it deserves.

The physiologic disturbances incident to obstructive jaundice are too numerous to list and to discuss even briefly in a short review. One can consider only those disturbances which appear to be the most important in the light of present knowledge. That the physiologic disturbances are numerous and complex is to be expected when one considers that bile retained in the biliary passages not only may pass into the blood and thus influence many organs but also may disturb the functions of the liver and the gastro-intestinal tract. Even if bile were not toxic in itself, one would expect disturbances due (*a*) to the effect of excessive biliary pressure on liver function; (*b*) to reflexes excited by excessive biliary pressure; (*c*) to the absence of bile in the intestine, and (*d*) to the effects secondary to these changes.

CAUSE OF DEATH IN JAUNDICE

Toxicity of Bile.—Bile has been thought to be toxic since the beginning of medicine; it is now an established fact. All experimenters agree that adequate quantities of sterile bile introduced intravenously cause death. But there is a surprising lack of agreement as to what constituent of bile is toxic, or most toxic. A glance at table 1 shows that three constituents of bile have been suspected of being toxic; namely, pigment, bile salts and cholesterol. It can be considered as established that cholesterol in the amounts present in toxic doses of bile is not the toxic agent. What the effect of the hypercholesterolemia associated with jaundice might be over long periods of time is another question. It is well established that bile salts in adequate amounts are cytolytic and toxic, and the majority of investigators attribute to these the toxicity of bile. The data on which the claim of high toxicity of the bile pigments [1] is based can be criticized in that

* From the Department of Physiology and Pharmacology, Northwestern University Medical School.

* Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

1. Merck's Report **28**: 13, 1914.

the pigments used were impure and the method of administration questionable. The more recent work of Horrall and Carlson [2] and of Still,[3] in which pure bilirubin and bile salts were used, shows that bile salts are toxic and that bilirubin spectrophotometrically identical with circulating bilirubin is not. The existence of some unknown toxic agent in bile is improbable, since the experiments of these investigators indicate that the toxicity of bile salts is sufficient to account for the toxicity of bile. However, the work of Meltzer and Salant,[4] Bunting and Brown,[5] and Greene and Snell [6] indicates that whole bile may be more toxic than its two major constituents.

Even though the bile salts are chiefly responsible for the acute toxicity of bile, it does not follow that the passage of bile salts into the general circulation in increased amounts is the sole cause, or even a cause, of the disturbances incident to jaundice. One must first be able to answer the following questions: In jaundice do the bile salts accumulate in the blood and tissues sufficiently to be toxic? And, what is the effect of a prolonged but not acutely toxic increase in circulating bile salts? Following the same logic, bile pigments may not be acutely toxic, but the gradual accumulation of bile pigment in the tissues and its prolonged action on them as occurs in jaundice may produce disturbances.

The earlier observers [7] believed that in obstructive jaundice bile acids were increased in the blood, lymph and urine, but they were puzzled by the small amounts found. For example, Bischoff [8] found a maximum of only 0.34 Gm. of bile salts eliminated in the urine in twenty-four hours in a deeply jaundiced patient, and Hoppe-Seyler [3] had to use 30 liters of urine from a jaundiced patient to obtain a positive qualitative test. More recent observers,[9] using better methods, have verified the earlier work and found that during the first week or two following obstruction the blood and urine bile acids increase but thereafter fall to normal levels. It has been suggested by some [10] that in jaundice the blood destroys the bile acids. Weintraud [11] offered an explanation which has more in its favor; namely, that the liver ceases forming bile acids. This is also suggested by Brakefield and Schmidt [9] and Snell, Greene and Rowntree.[9] The latter investigators have shown that serum bilirubin also tends to decrease in the later stages of obstructive jaundice, probably because of a decrease in production,[12] which may be associated with the anemia.[13] As jaundice progresses the "bile intoxication," as judged by the bile acid and pigment content of the blood, becomes less. It appears, then, that death from obstructive jaundice may not be due to the passage of bile into the circulation in toxic amounts. No one has injected bile continuously in small subacute toxic doses over long periods of time to observe the effect. But there are data bearing on the relative toxicity of bile intravenously, taking into consideration the time of injection and the daily output. Two grams of bile salt given in one minute to a 10 Kg. dog is generally lethal, but given throughout one hour does not prove fatal; but 4 Gm. in one hour is fatal.[14] These amounts are about one-half the normal twenty-four hour output.[15] Therefore, if injected slowly, the normal dog can eliminate one half of its total twenty-four hour output of bile salts within two hours.[6] The jaundiced dog also eliminates bile salts but not as rapidly as a normal dog, as might be expected.[16] The foregoing doses produce a concentration of bile acids in the blood of from three to five times that found at the highest point of blood bile acid following common duct obstruction. This suggests that bile salts may not accumulate in the blood in jaundice sufficiently to be toxic. Further, it cannot be said that the presence of a high bile acid level for several weeks leads to irreversible fatal toxic changes, since long standing obstruction, when relieved in the human being, results in a return to normal health. It is true that the injection of 5 cc. of sterile gallbladder bile per kilogram intraperitoneally causes a fatal peritonitis in dogs and rabbits (0.5 cc.).[17] But this is a large dose and the cytolytic action of bile on the peritoneum may set free toxic substances that act coincidentally with the absorbed bile salts.

The effect of an Eck fistula on jaundice is interesting and has a direct bearing on the question at hand.[18] The Eck fistula liver produces only about one-half the normal amount of bile, and when biliary obstruction is produced in such animals jaundice is very slight; or, if jaundice is present, an Eck fistula markedly relieves it and, according to Mathews,[18] prolongs the life of jaundiced animals. These data might be interpreted as showing that, the smaller the quantity of bile being formed, the less bile there is to overflow from the liver into the blood and to produce toxic effects. But it might also be interpreted as showing that, the smaller the quantity of bile being formed, the less the acute pressure and local toxic effects in the liver.

These observations strongly suggest that a patient in whom the liver is functionally deficient to begin with will withstand jaundice longer than one with a normal liver.

Liver Damage.—It is well known that anatomic liver damage occurs in obstructive jaundice. The pathologist speaks of "icteric necrosis," [19] "biliary infarcts" [20] and biliary cirrhosis. These changes have been observed in various animals by Rous and Larimore [21] and by Snell, Greene and Rowntree.[9] The former investigators have pointed out that the liver changes following biliary obstruction are essentially the same as those which occur in glands in general when their

2. Horrall, O. H., and Carlson, A. J.: Am. J. Physiol. **85**: 591 (July) 1928.
3. Still, E. U.: Am. J. Physiol. **88**: 729 (May) 1929.
4. Meltzer and Salant: J. Exper. Med. **8**: 127, 1906.
5. Bunting and Brown: J. Exper. Med. **14**: 445, 1911.
6. Greene, C. H., and Snell, A. M.: J. Biol. Chem. **78**: 691 (Aug.) 1928.
7. Stadelmann: Der Icterus, Stuttgart, 1891; Ztschr. f. Biol. **16**: 1, 1896.
8. Cited by Stadelmann (footnote 7).
9. Perlzweig, W. A., and Barron, E. G.: Proc. Soc. Exper. Biol. & Med. **24**: 233 (Dec.) 1926. Rosenthal, F., and Wislicki, L.: Arch. f. exper. Path. u. Pharmakol. **117**: 8, 1926. Brakefield, J. L., and Schmidt, C. L. A.: J. Biol. Chem. **67**: 523 (Feb.) 1926. Snell, A. M.; Greene, C. H., and Rowntree, L. G.: Diseases of Liver: Further Studies in Obstructive Jaundice, Arch. Int. Med. **40**: 471 (Oct.) 1927. Green and Snell (footnote 6).
10. Weintraud, in von Noorden: Metabolism and Practical Medicine **2**. Chicago, 1907, p. 250.
11. Weintraud: Arch. f. exper. Path. u. Pharmakol. **34**: 371, 1894.
12. McMaster, P. D.; Broun, G. O., and Rous, Peyton: J. Exper. Med. **37**: 395 (March) 1923. Drury, D. R., and Rous, Peyton: Ibid. **41**:601 (May) 1925. Rous, Peyton; and Drury, D. R.: Ibid. **41**: 601 (May) 1925.
13. Rous and Drury (footnote 12).
14. Greene and Snell (footnote 6). Horrall and Carlson (footnote 2). Still (footnote 3).
15. Whipple, G. H., and Smith, H. P.: J. Biol. Chem. **80**: 697 (Dec.) 1928.
16. Snell, Greene and Rowntree (footnote 9).
17. Horrall, O. H.: Experimental Bile Peritonitis and Its Treatment in Dog, Arch. Int. Med., **43**: 114 (Jan.) 1929. Ivy: Unpublished observations. Bunting and Brown (footnote 5).
18. Mathews, S. A.: Am. J. Physiol. **29**: xxvii, 1912. Whipple, G. H., and Hooper, C. W.: J. Exper. Med. **17**: 593, 1913. Am. J. Physiol. **43**: 290 (May) 1917; **42**: 544 (March) 1917. Voegtlin and Bernheim: J. Pharmacol. & Exper. Therap. **2**: 455, 1910-1911.
19. Eppinger: Beitr. z. path. Anat. u. z. Allg. Path. **31**: 230, 1902.
20. Carnot and Hervier: Arch. de méd. expér. et d'anat. path. **19**: 76, 1907.
21. Rous, Peyton, and Larimore, L. D.: J. Exper. Med. **32**: 249 (Aug.) 1920.

excretory ducts are obstructed. Obviously, therefore, if the anatomic changes are sufficiently extensive, one should expect disturbances in liver function.

As might be expected, the literature on disturbances of liver function due to obstructive jaundice is contradictory. Weintraud,[10] reviewing the older literature, stated that obstruction "to outflow of bile hinders the storing of glycogen in the liver." More recently, Snell, Greene and Rowntree [22] found the fasting blood sugar level to be normal but the fructose tolerance to be decreased. Weintraud [10] concluded that urea formation is rarely affected, but more recently it has been found in animals that the blood urea level falls to rise later because of a terminal renal insufficiency.[22] The retention of bromsulphalein has been found to be persistent throughout experimental jaundice,[16] as might be expected. Ascites is known to develop in prolonged jaundice in both man and dog.[23] These observations indicate that liver function in jaundice is disturbed; but a satisfactory answer awaits the discovery of a real liver function test.

The Lack of Bile in the Intestine.—Bile flow into the intestine seems to play an important if not a vital rôle. Dogs with complete biliary obstruction generally die in three months but occasionally survive six or seven months. Bile fistula dogs on a kitchen scrap diet generally survive only two months, but on a milk-carbohydrate diet they survive for from four to ten months and manifest marked abnormalities of the bone, purpura, anemia and pigment disturbances.[24] Whipple [24] reports that, if from 10 to 20 per cent of the bile flows into the intestine, health is normal. The same quantity of bile by mouth is beneficial but does not prevent a disturbance of nutrition. The constituent of bile that plays this important rôle is not known. By adding to the diet liver and bile [25] cod liver oil or ergosterol,[26] bile fistula dogs have been kept for more than a year. In man,[27] complete obstruction generally proves fatal in from four to six months, although there have been occasional instances of longer survival. Human beings with biliary fistula [28] apparently are less affected than are animals, some patients dying in ten months and others doing well for even a longer period of time. Proper dietary control is apparently a very important factor.

Bony disturbances, hemorrhages, disturbances of digestion and nutrition, decreased bile salt formation and anemia are phenomena common to both jaundice and lack of bile flow into the intestine.

It cannot be concluded, however, that the lack of flow of bile into the intestine is the cause of death in jaundice.

Terminal Nephritis.—Snell, Greene and Rowntree [22] observed in jaundiced dogs a terminal rise in blood urea due to renal insufficiency. Still and Carlson [23] also observed nephritis in their dogs. Horrall and Carlson,[2] following the injection of bile into the peritoneal cavity, observed an anuria which they explained as due to the fall in blood pressure associated with the intoxication. They further found that, on administration of sublethal doses of bile, albumin appeared in the urine for several weeks. Further evidence is required to ascertain what rôle a terminal nephritis plays in the cause of death in jaundice.

Summary.—I do not believe that the evidence at hand permits a positive statement as to the cause of death in jaundice. A summation of the foregoing factors is probably the cause, and one factor may predominate in one case and another factor in another case. The fact cannot be avoided that bile in adequate doses is lethal, but it is not known that the amount of bile that actually gets into the blood stream in jaundice will prove fatal. It is known that jaundice affects the liver, but it is not known that acute liver insufficiency occurs in jaundice. It is known that the absence of bile from the intestine leads to marked disturbances of nutrition and metabolism, but it is not certain that such changes per se will prove fatal. The patient suffering from prolonged jaundice presents a picture that results from the failure of a number of physiologic mechanisms.

THE HEART IN JAUNDICE

Much has been written concerning the bradycardia which is said to occur commonly, but not always, in the jaundiced patient. Some well known internists [29] have failed to observe it. According to Osler, it occurs only during the early stages of jaundice or only during the time at which there is accumulation of bile salts in the blood, which I believe is a significant observation. Windle [30] found bradycardia present in young people having catarrhal jaundice but not in the majority of cases with obstructive jaundice. Buchbinder [31] observed it in early obstructive jaundice in puppies but not in adult dogs. Apparently the "younger" the vagocardiac mechanism, the more sensitive it is to the early effects of jaundice, which is sufficient to explain the discrepancies in the literature.

Given a sensitive mechanism, what causes it to react? There is ample evidence showing that bile or bile salts in moderate doses increase vagal inhibitory tone and that atropine or vagus section abolishes the bradycardia.[32] (In larger doses the intracardiac ganglions and the cardiac muscle are injured.) This means that the causative factor is operating either on the vagus center or on the nerve endings. In jaundice, vagal tone can be increased either by reflexes caused by distention of the biliary passages [33] or by the increased bile salt level of the blood in early jaundice. In the marked cases of bradycardia, both mechanisms are probably operating. Another factor that must be kept in mind is the low calcium content of the heart reported by King, Bigelow and Pearce,[34] which is questioned by Buchbinder,[31] and the alleged decrease in "utilizable" blood calcium to be discussed later. Also Finsterer [35] and

22. Snell, A. M.; Greene, C. H., and Rowntree, L. G.: Diseases of Liver: Comparative Study of Certain Tests for Hepatic Function in Experimental Obstructive Jaundice, Arch. Int. Med. **36**: 273 (Aug.) 1925.
23. Haberland, H. F. O.: Arch. f. klin. Chir. **135**: 248, 1925. Still, K. S., and Carlson, A. J.: Am. J. Physiol. **89**: 34 (June) 1929. Snell, Greene and Rowntree (footnote 9).
24. Whipple, G. H.: Physiol. Rev. **2**: 458 (July) 1922.
25. Wisner, F. P., and Whipple, G. H.: Am. J. Physiol. **60**: 119 (March) 1922. Smith, H. P.; Groth, A. H., and Whipple, J. H.: J. Biol. Chem. **80**: 659 (Dec.) 1928.
26. Seifert, E.: Beitr. z. klin. Chir. **136**: 496, 1926. Tammann: Ibid. **142**: 83, 1928.
27. Wangensteen, O. H.: How Long May Man Live with Obstructive Jaundice? J. A. M. A. **90**: 1683 (May 26) 1928.
28. Wangensteen, O. H.: Complete External Biliary Fistula, J. A. M. A. **93**: 1199 (Oct. 19) 1929.
29. Mackenzie, James: Diseases of the Heart, London, Oxford Medical Publications, 1921. Vaquez, Henri: Diseases of the Heart, trans. by G. F. Laidlow, Philadelphia, W. B. Saunders Company, 1924. McVicar, C. S., and Fitss, W. T.: Clinical Aspects of Jaundice, J. A. M. A. **89**: 2018 (Dec. 10) 1927.
30. Windle: Brit. M. J. **1**: 123, 1916.
31. Buchbinder, W. C.: Experimental Obstructive Jaundice: Age Factor in Production of Bradycardia, Arch. Int. Med. **42**: 743 (Nov.) 1928.
32. Rohrig: Arch. d. Heilk. **4**: 385, 1863. Horrall and Carlson (footnote 2). Buchbinder (footnote 31). Minkowski: Ergebn. d. Path. **2**: 709, 1895. Meltzer and Salant (footnote 4). Dumintresco-Mante: Presse méd. **37**: 34 (Jan. 9) 1929.
33. Buchbinder (footnote 31); Schrager, V. L., and Ivy, A. C.: Surg. Gynec. Obst. **47**: 1 (July) 1928.
34. King, J. H.; Bigelow, J. E.; and Pearce, Louise: J. Exper. Med. **14**: 159 (Aug.) 1911.
35. Finsterer: Deutsche. Ztschr. f. Chir. **118**: 1, 1913.

Ricciuti [36] report that liver injury may cause bradycardia.

The depression of blood pressure and the feeble pulse which occur after prolonged jaundice are explained by Horrall and Carlson [2] as being most probably due to malnutrition rather than to the toxic action of bile salts.

TABLE 1.—*Conclusion Reached by Various Investigators Relative to the Toxicity of the Constituents of Bile*

Pigment more toxic than other constituents:
Bouchardt, cited by Stadelmann.
King and Stewart: J. Exper. Med. **11:** 673, 1909.
King, Bigelow and Pearce: J. Exper. Med. **14:** 159, 1911.
De Bruin, cited by Weintraud.
Pigment slightly toxic:
Rywosch: Arb. d. Pharm. Inst. zu Dorpat. **2:** 102, 1888.
Gilbert and Herscher: Compt. rend. Soc. de biol. **59:** 208, 1906.
Ackeren, cited by Weintraud.
Pigment nontoxic:
*Horrall and Carlson: Am. J. Physiol. **85:** 591, 1928.
*Still: Am. J. Physiol. **88:** 729, 1929.
Bile salts toxic:
Rywosch: Arb. d. Pharm. Inst. zu Dorpat. **2:** 102, 1888.
Rohrig: Arch. d. Heilk. **4:** 385, 1863.
Traube: Berl. klin. Wchnschr. **9:** 85, 1864.
Stadelmann: Der Icterus, Stuttgart, 1891; Ztschr. f. Biol. **16:** 1, 1896.
De Bruin, cited by Weintraud.
Sellards: Arch. Int. Med. **4:** 502, 1909.
Weintraud: Arch. f. exper. Path. u. Pharmakol. **34:** 371, 1894.
Spalitta: Untersuche zur Naturlehre **14:** 144, 1894.
Biedl and Krause: Zentralb. f. inn. Med. **19:** 1185, 1898.
*Horrall and Carlson: Am. J. Physiol. **85:** 591, 1928.
*Still: Am. J. Physiol. **88:** 729, 1929.
Cholesterol toxic:
Danilewsky: Arch. f. d. ges. Physiol. **120:** 181, 1907.
Flint: Am. J. M. Sc. **53:** 305, 1862.
Cholesterol nontoxic:
Fasciani: Arch. Ital. de Biol. **63:** 136, 1905.
Rywosch: Arb. d. Pharm. Inst. zu Dorpat **2:** 102, 1888.
Feltz and Ritter, cited by Weintraud.
Horrall and Carlson: Am. J. Physiol. **85:** 591, 1928.

* Used pure products in much of their work.

BLOOD CLOTTING AND CALCIUM LEVEL

In spite of the skepticism that is occasionally expressed, it can be considered as established that in certain cases of obstructive jaundice there is a tendency to hemorrhage. The factors responsible for the variation from patient to patient are not known. The duration of the jaundice is reported to be a factor by Lee and Vincent.[37]

In spite of the large amount of serious work done, the cause of the tendency to hemorrhage in jaundice is not understood. It may be due either to some disturbance of the organic clotting elements or to a functional deficiency of calcium causing delayed coagulation or an "unfirm" clot, or to fragility and lack of contraction of the blood vessels. (Duke's bleeding time should be determined as well as the clotting time.) All the various clotting elements have been suspected as being at fault—thrombin formation and available thrombokinase,[38] fibrinogen [39] and fibrin formation.[40] The greatest amount of study has been devoted to blood calcium, since it is known to play an important rôle in clotting and since a disturbance of calcium metabolism is present in prolonged jaundice.

The summary of the literature shown in table 2 demonstrates that there is no agreement as to either the quantity or the quality of the blood calcium in jaundice. This lack of agreement may be due to defective technic or to unknown variable factors. The results of Buchbinder [31] show that age is an important factor, since puppies showed a definite decrease in serum calcium and disturbances of bony structure whereas little or no disturbance occurred in adult dogs. The most recent and careful work of Snell and Greene [41] shows that there is no correlation between total or diffusible serum calcium, bilirubin content and coagulation time in jaundiced animals and man. It is generally maintained without proof that diffusible calcium is more readily metabolized. But Snell and Greene find that calcium chloride can be given intravenously and the coagulation time reduced without affecting serum bilirubin, serum calcium and diffusible calcium. Vines [42] reports that ionized calcium is not necessary for clotting. Cantarow, Dodek and Gordon [43] state that parathyroid extract hastens coagulation in jaundice, but Zimmerman [44] was unable to detect any change, even though he observed an increase in the blood calcium. That there is some functional deficiency in calcium metabolism is indicated by the bony changes in jaundice,[31] by the greater tolerance of the jaundiced dog to intravenous calcium,[45] and by the decreased effectiveness of parathyroid extract in parathyroidectomized dogs with jaundice;[46] but it does not follow that delayed clotting is due to a functional deficiency of calcium even though an injection of calcium does hasten coagulation. The literature does not teach how calcium administration in jaundice hastens coagulation, which I know from personal observation it does in some cases. Nor is the cause of the disturbance of calcium metabolism known; but the literature explains it as due either to decreased absorption and increased elimi-

TABLE 2.—*Blood Calcium in Jaundice*

Increase due to increased calcium mobilization and excretion:
King, Bigelow and Pearce: J. Exper. Med. **14:** 159, 1912.
King and Stewart: J. Exper. Med. **11:** 673, 1909.
Decreased:
Halverson, Mohler and Bergeim: J. Biol. Chem. **32:** 171, 1917.
*Koechig: J. Lab. & Clin. Med. **9:** 679, 1923.
Kirk and King: J. Lab. & Clin. Med. **11:** 928, 1926.
Emerson: J. Lab. & Clin. Med. **14:** 122, 1928.
†Buchbinder and Kern: Arch. Int. Med. **41:** 754, 1928.
Pettibone: J. Lab. & Clin. Med. **3:** 275, 1918.
No change:
Snell, Greene and Rowntree: Arch. Int. Med. **36:** 273, 1925.
Walters and Bowler: Surg. Gynec. Obst. **39:** 200, 1924.
Zimmerman: Klin. Wchnschr. **6:** 726, 1927.
†Buchbinder and Kern: Arch. Int. Med. **41:** 754, 1928.
Snell and Greene: Am. J. Physiol. **92:** 630, 1930.
Shattuck and Killian: Tr. Am. Gastro-Enterological A., Atlantic City, May, 1930.
Functional deficiency:
King, Bigelow and Pearce: J. Exper. Med. **14:** 159, 1911.
Lee and Vincent: Arch. Int. Med. **16:** 59, 1915.
Walters: Surg. Gynec. Obst. **33:** 651, 1921.
Cantarow, Dodek and Gordon: Arch. Int. Med. **40:** 129, 1927.
Walters and Bowler: Surg. Gynec. Obst. **39:** 200, 1924.
Decrease in diffusible form of calcium in blood:
Kirk and King: J. Lab. & Clin. Med. **11:** 928, 1926.
Emerson: J. Lab. & Clin. Med. **14:** 122, 1928.
Shattuck and Killian: Tr. Am. Gastro-Enterological A., Atlantic City, May, 1930.
No change in diffusible calcium:
Snell and Greene: Am. J. Physiol. **92:** 630, 1930.

* Thought decrease to be due to defective method.
† Decreased calcium in puppies, no change in adult dogs. Reduction in three cases of human jaundice.

36. Ricciuti, J.: Policlinico (sez. chir.) **34:** 229 (May) 1927.
37. Lee, R. I., and Vincent, Beth; The Relation of Calcium to the Delayed Coagulation of Blood in Obstructive Jaundice, Arch. Int. Med. **16:** 59 (July) 1915. Lee, R. I., and White, P. D.: Am. J. M. Sc. **145:** 495, 1913.
38. Morawitz and Bierich: Arch. f. exper. Path. u. Pharmakol. **56:** 115, 1907.
39. Snell, Greene and Rowntree (footnote 22). Kunika: Deutsche Ztschr. f. Chir. **118:** 574, 1912.
40. Haessler, H., and Stebbins, M. G.: J. Exper. Med. **29:** 445 (May) 1919.
41. Snell, A. M., and Greene, C. H.: Am. J. Physiol. **92:** 630 (April) 1930.
42. Vines, H. W. C.: J. Physiol. **55:** 86 (May), 287 (Aug.) 1921.
43. Cantarow, Abraham; Dodek, S. M., and Gordon, Burgess: Calcium Studies in Jaundice, Effect of Parathyroid Extract on Distribution of Calcium, Arch. Int. Med. **40:** 129 (Aug.) 1927.
44. Zimmerman, L. M.: Klin. Wchnschr. **6:** 726 (April 16) 1927; Am. J. M. Sc. **174:** 379 (Sept.) 1927.
45. Walters, Waltman; and Bowler, J. P.: Surg. Gynec. Obst. **39:** 200 (Aug.) 1924.
46. Buchbinder, W. C., and Kern, Ruth: Experimental Obstructive Jaundice, Modification of Parathyroid Tetany Mechanism in Jaundice, Arch. Int. Med. **41:** 754 (May) 1928.

nation or to a combination with bilirubin, or to the use of calcium as a "detoxifying" agent.

It should be pointed out that intravenous therapeutic doses of calcium rapidly disappear from the blood,[47] and the effect on coagulation may be transitory.[48] Overdoses must be avoided because of possible damage to the kidney and heart.[45]

SUMMARY

In obstructive jaundice there exist a number of failing physiologic mechanisms and it is not known which one is primarily concerned. The fundamental nature of the reactions involved in producing the physiologic disturbances is not completely understood at present. The literature indicates that a carbohydrate diet with milk and cod liver oil and calcium administration are worth while therapeutic procedures in this condition. The fact that the problem is being actively attacked by several groups of investigators augurs well for the future of the understanding of physiologic disturbances in jaundice.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. JUDD AND MARSHALL, PAYNE, BLANKENHORN AND IVY

DR. F. C. MANN, Rochester, Minn.: Bile pigment is important to the clinician because it gives the sign of jaundice. To the physiologist it is the least important of the biliary constituents. So far as is known it is wholly an excretory product, a part of the hemoglobin molecule which cannot be used any more. It is known to be formed from the hemoglobin that is taken from the red blood cell. No other constituent of the blood from which it can arise is known. It is known that certain extrahepatic cells, which Aschoff calls the reticulo-endothelial cells, form it. It has never been proved that the polygonal cells form it. I would not mention the van den Bergh test except for its presentation by Dr. Blankenhorn, but I suggest that the van den Bergh test, direct and indirect, does mean something in regard to bile pigment. I shall cite one series of experiments that Dr. Bollmann and I have performed. In a dog of which the common bile duct is ligated and the gallbladder removed, bilirubinemia begins to develop and can be determined spectrophotometrically within fifteen minutes. After six or eight hours the plasma, which was colorless before operation, is yellow, gives a definite reaction, and is measurable by the van den Bergh test. If the liver is removed after bilirubinemia has developed, the curve of development of bilirubinemia does not change. As measured by the van den Bergh test or with the spectrophotometer there is a constant increase of bilirubin in the blood and removing the liver does not change the rate of its development, but the amount of bilirubin which responds to the direct method does not increase. In other words, all of the increased amount that is found after removal of the liver gives only the indirect reaction. This, to me, would imply rather conclusively that the liver does do something to the bile pigment, even though most of it is not formed within it. For fear that I might be thought to be too much in disagreement with Dr. Blankenhorn concerning the van den Bergh test, I should also report the fact that there are some species of animals which never give a direct van den Bergh reaction, even though the bile is taken directly from the hepatic or common bile ducts.

DR. ONIS H. HORRALL, Chicago: The cause, mechanism, significance and the physiologic and pathologic effects of jaundice have been investigated for many centuries, but not until the beginning of the nineteenth century have the particular substances in bile been investigated. Bilirubin has been accused as the offending substance, and accordingly the present classification of jaundice has been based on the bilirubin content of the blood, and the kind of bilirubin according to the van den Bergh test. Brulé and the French school have pointed out that bilirubin and bile salts vary in jaundice, and they speak of dissociated jaundice. Certainly the toxic symptoms in jaundice cannot all be attributed directly to bile or to its acids. Jaundice is a complex problem. Numerous systems are disarranged, as the digestive, the circulatory, the urinary, and even the nervous, either primarily or secondarily. Intravenous injections of bile have been compared with obstructive jaundice. But here little is known of the amount of bile acids in the blood stream, nor is it known how they act on the different cells. As recently shown, the bile pigments are not entirely of hepatic origin. May not the bile acids be the products of the metabolism of the body cells? Thus the study of the bile acid content of the blood and body tissues may give some clue to the actual pathologic condition. I believe that, as soon as a very sensitive specific test for toxic bile acids is discovered, it will be possible to classify jaundice on a more workable basis. The use of dehydrocholic acid, intravenous or by mouth, may modify the course of jaundice.

DR. JOSEPH S. DIAMOND, New York: I wish to correct the impression Dr. Blankenhorn has given regarding the inability of differentiating the obstructive from other types of jaundice. The differential diagnosis between the hemolytic type and the others offers no difficulty. The condition, however, which concerns every one is to know, when one is faced with a case of jaundice, whether it is due to obstruction, requiring surgery, or to an hepatic disease, requiring merely medical attention. Dr. Blankenhorn was pessimistic about present knowledge and could not mention any clinical test to help in such differentiation. He spoke briefly of urobilinogen, from the physiologic standpoint. He has not stated, however, that the daily studies of the amount of urobilinogen in the urine in jaundice will quickly give information as to the type of jaundice one is dealing with. In the obstructive type no bile can enter the intestinal canal; therefore no urobilinogen will be found in the urine, because urobilinogen is a pigment derived from the bile, being oxidized in the large bowel. On the other hand, in the catarrhal or toxic jaundice there is no obstruction in the common duct. The old theory of a mucus plug in the common duct derived from an ascending gastroduodenitis has been proved pathologically incorrect. Toxic or catarrhal jaundice must be regarded as a disease of the liver itself, a parenchymatous change in the liver cells. There is no obstruction in the bile passages, and bile is found in the intestine. The urobilinogen formed is brought back to the liver and there the diseased liver, being unable to utilize it, shunts the urobilinogen into the general circulation, whence it is eliminated in the urine in large amounts. The increased output indicates the existence of toxic hepatitis. In other words, it is a medical type of jaundice which should be left alone. A test of value described by Wallace and Diamond consists of the addition of Ehrlich's aldehyde reagent to freshly voided urine. A red coloration is obtained, varying in intensity with the amount of urobilinogen present. Normally only minute traces are found. In obstructive jaundice none is found, while in catarrhal jaundice a deep, dark red develops. In a case of jaundice, the urine should be tested daily and if it is persistently negative for urobilinogen one may regard it as due to obstructive causes, requiring surgery, while in the catarrhal jaundice it will increase daily with the progress of the disease and is of good prognostic omen.

DR. M. A. BLANKENHORN, Cleveland: I am aware of Dr. Wallace's and Dr. Diamond's studies in urobilinogen in urine and feces and have applied them for a long time. I still am a bit pessimistic in regard to these tests. I have found frequently that if the test is applied during the obstructive period (and there is an obstructive period in catarrhal jaundice in which urobilinogen is wanting from the urine) there will be an error in diagnosis. If the test is applied next day when conditions have changed somewhat, one immediately switches to a different type of jaundice. The thing I would emphasize, lest I appear to be quibbling, is that the problem must be considered as kinetic and not static, and that frequent observations must be made during the course of the disease.

47. Walters and Bowler (footnote 45). Heubner and Rona: Biochem. Ztschr. **93**: 187, 1919.
48. Jansen: Klin. Wchnschr. **3**: 17, 715, 1924.

THE MENACE OF MENTAL FACTORS IN BODILY DISEASES *

CORNELIUS C. WHOLEY, M.D.
PITTSBURGH

Medical and surgical conditions are often imitated and exaggerated by mental causes. This circumstance constitutes a menace in diagnosis and treatment. Stevenson [1] recently found in a large medical clinic that 19 per cent of the patients who came to the gastro-intestinal specialist had severe emotional problems, and that in only one fourth of the cases were mental or emotional disturbances absent. In 16 per cent of the children brought to the pediatric clinic, emotional factors arising in the home were responsible for the disorders in the children.

A vast amount of evidence has accumulated to show that mental conflicts and emotional disturbances upset the normal physiologic functions of the vegetative or sympathetic system. This system, as is known, regulates secretion, circulation, digestion and respiration. If it is disturbed, functional disability takes place in the viscera associated with these functions, such as kidneys, heart and stomach. When this functional upset persists, in time it may become organic. Now, if such causal relationships between mental and bodily functions are borne in mind and dealt with as a matter of routine, along with toxic, infectious, metabolic and other causes of ill health, the menace of mental factors in medicine could be largely eliminated.

I am concerned in this discussion mainly with the bodily disturbances associated with the psychoneuroses —hysteria, neurasthenia and anxiety states. Similar pseudo-organic maladies are encountered also in the true insanities, especially when depression exists, and they generally involve the digestive tract. But the mental symptoms in these patients are usually so pronounced as to indicate without question the psychic origin of the symptoms and generally lead to early institutional care. Broadly speaking, the cases cited in this paper may all be regarded as arising on a background of hysteria, fabricated through both hereditary and environmental influences.

The first case I shall discuss presented offhand a clinical picture of change in the gallbladder which ordinarily would call for surgical intervention. But on further investigation it was found that the symptoms were entirely on a mental basis.

REPORT OF CASES

CASE 1.—An Italian girl, aged 14, referred by her family physician because of his inability to discover any convincing evidence of gallbladder disease, presented the usual clinical symptoms of gallstone attacks. She had complained for six months of symptoms characteristic of cholelithiasis. There had been almost constant nausea and at times vomiting. Lately she complained of pain in the right hypochondrium, which during the past three weeks had occurred in paroxysms with nausea. Pain was increased by food. There was dizziness and headaches at times with the attacks of pain and nausea. Pain radiated to the back and right shoulder.

The symptoms continued to become more aggravated until finally operation was considered. In the hospital, however, a thorough examination again failed to reveal any evidence of diseased gallbladder. Roentgen and fluoroscopic examinations were negative. There was no rigidity over the abdomen; no jaundice; no clay-colored stools; no occult blood; the pulse was between 80 and 90. At this time there was a slight elevation of temperature for the first time during the illness.

The patient was a stout, healthy looking girl. She seemed anxious and fearful during the examination. Neurologic examination brought out no evidence of any organic nervous disease. Her manner and her overreaction to all reflex stimuli strongly suggested hysteria. The excessive anxiety of her mother, who hovered near by and vividly related her daughter's many symptoms, suggested plainly a neurotic background.

The case became intelligible in the light of the following mental and emotional factors:

The patient was the youngest of five children. Her bowels were badly constipated when she was an infant. At 15 months of age she had unconscious spells lasting from three to five minutes at a time. They occurred sometimes daily or again only once a week and were not accompanied by convulsive movements, or by any other signs of epilepsy. They continued until her fifth year. At her eleventh month, she would roll her head rhythmically from side to side for two or three days at a time. At 10 years her appendix was removed. It should be noted that the appendicitis was not acute. I was unable to learn whether the appendix was diseased in any way. She talked at 18 months and walked at 2 years. Her history was then uneventful until the present illness, which set in six months before I saw her.

Turning to the mother, I quickly discovered that a morbid emotional relationship existed between her and the daughter. The mother herself had suffered from gallstone attacks during the pregnancy with and since the birth of this youngest child. She was unusually devoted to the child and kept watch over her to an extraordinary degree. The two were always inseparable and when the child grew older she nursed the mother through many true attacks of gallstones. Operation cured the mother. Six months later the daughter settled into her own seeming gallbladder attacks.

Following the mother's convalescence from her operation, the girl began having discomfort in the lower left abdominal region, probably due to constipation and innocent except for the ready mental soil prepared by her intimate sympathetic life with her mother through the latter's gallbladder sufferings. Then the girl began having symptoms similar to those presented by the mother during her gallstone attacks. The distress shifted to the right side and a perfect duplicate of the mother's attacks was soon evolved. The mother gradually became convinced that the girl was affected as she had been. She had little difficulty in convincing the daughter that this was a fact. She decided that prenatal influence had destined the child to her own infirmity. She finally became obsessed with the idea that nothing but an operation would cure the girl, since operation had been her own salvation.

In the light of the foregoing data, the youth of the patient, and in the absence of physical and laboratory confirmation, the case was diagnosed as unquestionably one of major hysteria. The girl was identifying herself with the mother and had gradually taken on all of the mother's gallbladder symptoms.

In order to corroborate this diagnosis, complete isolation of the girl from the mother was carried out for two days, under great protest on the part of the mother. During these two days, the symptoms entirely disappeared. The mother took the girl home and all symptoms immediately reappeared. It was impossible to convince the mother that no operation was necessary and that the girl might be cured if the mother would consent to be separated from her. The continuance of the symptoms and the demands of the mother for operation finally brought about a laparotomy. A normal gallbladder was revealed. The girl has remained free from the gallbladder attacks for six months, certainly because of suggestions of cure she received following operation. However, she has complained almost continually after the first month, of abdominal distress. At times, the complaints are acute and accompanied by slight rise in temperature. Her visits to a physician are as frequent as ever. She is likely to follow a course of chronic invalidism. Her neurosis has not and cannot (because of family) be dealt with. To it has no doubt been

* Read before the Section on Nervous and Mental Diseases at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

1. Stevenson, George: Why Patients Consult the Gastro-Enterologist, J. A. M. A. 94: 333 (Feb.1) 1930. Emerson, Haven: The Magnitude of Nervous and Mental Diseases as a Public Health Problem, at the first international Congress for Mental Hygiene, Washington, D. C., May 6, 1930.

added some degree of organic disorder. She has been caught in a vicious circle whose weakest arc—the mental or neurotic—is least accessible to therapy.

Case 2.—*History.*—A woman, aged 48, was referred to me because of the sudden onset of violent occipital headache, dizziness and vomiting. These symptoms had come on suddenly on arising, the day before I saw her. She said the back of her neck felt as though she had been suddenly hit with a club. She had been referred because her symptoms suggested brain tumor or meningitic involvement.

The patient was well nourished. She held her head turned to the extreme left, with an expression of anxiety and pain. Examination was difficult because of nausea, which was increased on exertion, and because the patient declared that if she turned her head to the right, even to a slight degree, she was immediately beset by the most intense vertigo. She said, "The room immediately whirls to the left, and I quickly follow, turning in the same direction."

I found, however, that her pupillary reactions presented no anomalies, though the pupils were moderately dilated and reacted poorly to light, the left showing a better reaction. Ocular movements were good but there was a slight internal squint of the left eye, which had been present from childhood. The ocular disks were normal. There was no rigidity of the neck, no deafness, no adiadokokinesis. Laryngeal and pharyngeal innervation were normal. The right elbow jerk was a little more active than the left, both being somewhat plus. The knee jerks were normal. Babinski's sign was absent. The temperature was normal, the pulse 80. Sensation was normal; the blood and urine gave negative results to tests. The blood pressure was 147 systolic and 90 diastolic.

Because of the absence of physical or neurologic signs of any acute inflammatory condition, and the absence of any definite indication of organic intracranial disturbance, and because the patient's vomiting and vertigo were already less disturbing, an expectant plan was followed after administering hypnotics and reassuring the patient. This plan was further justified by the patient's reaction, which seemed to present an emotional element. This fact suggested a doubt as to the organic origin of her symptoms. She overreacted, and her expression of pain was not convincing as is that seen in true organic cases.

Spinal fluid and roentgen examinations were withheld, and when the patient's history came to light, it gave further justification for following a waiting plan of treatment. She grew better rapidly. She was eating comfortably twenty-four hours after admission to the hospital. She had to be very careful about moving her head because of the vertigo, but this also gradually disappeared and she could move about the room freely at the end of ten days. At the end of four weeks she went home entirely free from all symptoms and has remained so now for eight months.

Emotional Background.—At the age of 15, this patient "lost her eyesight." Regular physicians had failed to cure her, but her sight had been restored after a few visits to an osteopath. She had married happily at 21, longed for children and had had great disappointment when her first child died at the end of nine days. A second child, born a year later, lived but was mentally defective, having to be placed in an institution for the feebleminded. She said this experience was the "worst of her life." She had seemed, however, to readjust herself fairly well. Her home was pleasant; she had many friends and a devoted, tactful husband. Her continued yearning for children was rewarded after sixteen years by the arrival of a boy, now 6 years of age. Her solicitude and affection for this last child was of course intensified by the memory of her previous sad experiences with children.

When I inquired about events immediately preceding the present illness, I found that six months earlier she had fallen, striking the lower end of her spine, which had "upset her nerves for several weeks." Following this, an automobile trip through Yellowstone Park left her pretty well exhausted on returning home.

Then her boy started to school and it was noticed that she became unusually active. She said she could no longer sit at home quietly as she used to. She missed the boy. She took on numerous social and church interests (compensatory activities). Two months before her present illness, it was decided that the boy's tonsils should be removed. She became extremely anxious. She could not keep the thought of the possibility of losing him out of her mind. The day for operation was set and the mother's anxiety increased. It is important to bear in mind the patient's emotional state at this time, and particularly the details of the next scene, as this appears to have determined the clinical symptoms she later imitated.

She was allowed to see the boy in his room immediately on his return from the operation. He was still under the anesthetic. His head was turned to the left over a sputum pan because of his nausea, vomiting and bleeding. (The mother's symptoms on admission: head turned to left; vomiting.) She "felt sure he was going to die." Ten days later, she had a spell of nausea and at this time received news of the death of a very dear friend. At the funeral she was again nauseated. The evening of this funeral a large celebration for her silver anniversary took place. She had to be excused from the festivities because of nausea and vomiting. The next day, one of the friends who had attended the celebration died. This event caused still further shock. From that time until the acute onset of her present symptoms, she was restless, anxious and nauseated with slight vertigo at times. This period represents the preliminary or incubation time of the neurosis, though preceding events prepared the soil for the final break.

Time will not allow a detailed analysis of the relationship of the patient's later acute illness with the incidents just cited. They centered around her 6 year old boy and his operation. The entire and rapid disappearance of all her symptoms left no doubt, however, that they were emotional or psychogenic in origin. She passed into her psychoneurosis at the time of the boy's operation. The death of two friends while she was still in this emotional state aggravated her neurosis and it finally fashioned itself definitely after the image of her child with his head turned to the extreme left, vomiting—the picture presented by the patient on admission to the hospital. In such cases of overwhelming sympathy and emotion, a person may identify himself with another's suffering and may imitate all the evidences of such distress. In this case, the vicarious suffering occurred in an exaggerated degree.

The patient was rendered especially vulnerable by the chain of circumstances both preceding her son's operation and immediately following it. She had been extremely anxious as to the outcome of the operation and had been subjected to the shock incident to the deaths of two close friends. The vertigo was an exaggeration of slight vertigo experienced with the mild vomiting attacks that had occurred previous to the serious acute symptoms.

The case is intelligible in the light of such causative factors and is to be classified as an anxiety psychoneurosis with the passing over of psychic impressions into bodily manifestations—the so-called hysteria conversion phenomenon.

That this patient was predisposed to react in an hysterical fashion to overwhelming circumstances was indicated in the fact of her lost eyesight at the age of 15, restored by a few osteopathic treatments. She represents an extreme instance of how bodily symptoms of serious disease conditions can be taken on, or initiated through purely emotional causes. In this instance, the symptoms imitated those of an acute inflammatory meningeal irritation or brain tumor.

Case 3, in contrast to the previous two in which surgical problems seemed to the fore, presented symptoms apparently indicating medical therapy.

Case 3.—A woman, aged 40, had been bedridden for twenty years. I first saw her ten years ago. Her physician described her then as having neuritis and as addicted to opiates.

She had been an invalid since the death of her mother when she herself was 18 years of age. She was the eldest of four children, there being a sister and two brothers. The family was remarkable for the devotion that existed among its members. The father had died some years previously and this had served to increase the affection and mutual dependence of the surviving members on one another.

When the mother died, after a period of invalidism, the children displayed an unusual degree of grief. The patient

whom I was asked to see seemed inconsolable. She made incessant visits to the mother's grave. She did not sleep and ceased to take part in the household affairs. Finally she began to complain of digestive disturbances and, six weeks after her mother's death, took to her bed. There she remained until the time of her death, twenty years later. It was about midway in this bedridden invalidism that I first saw the patient.

Her complaints at first centered about her digestion. Nausea appeared and occasional vomiting. She became emaciated and complained of weakness. Her sister became her constant companion and nurse. The greatest concern was shown over her complaints and symptoms; her illness became the paramount interest of the family. The pathetic story of this attractive young woman's invalidism gradually captured the sympathy of a wide circle of relatives and friends. Her home became a sort of shrine. Church societies and women's organizations to which she had belonged vied with one another in expressions of sympathy on all anniversary and holiday occasions.

At the time of my first examination, the girl was greatly emaciated. Her ten years' illness with all its elaborations had become a neighborhood institution. She kept her eyes closed most of the time during my early visits, appearing to have a marked photophobia. At times, however, I discovered her taking furtive glimpses of my actions when she thought I was not observing her. My visits had continued for several years before her eyes would meet my own squarely, and then but for a moment. Her conversation was usually rambling and at times incoherent, but during the later years of her illness she talked more freely, frankly, and often very intelligently. I was told that the patient had the most intimate knowledge of every detail concerning the affairs of each member of the household and her advice was sought by the family on all undertakings.

Her physician told me that suppositories of opium had already been administered rectally for several years. The dosage had gradually increased until about 5 grains (0.3 Gm.) of opium was being used daily. The narcotic had been begun following the earlier appearance of cramps in the abdomen. Severe neuralgic pains about the shoulders and chest seemed to necessitate increase of the drug. Gradually a swelling appeared in the right iliac region and constipation slowly reached the stage at which movements occurred only at intervals of between two and three weeks. The tense tympanitic tumor in the right iliac quadrant seemed to be a loop of bowel. The patient's reflexes were normal. There was no elevation of temperature. Her condition prohibited any thought of operation for the mass in the abdomen. Only few and specially prepared articles of food were taken, with frequent regurgitations.

During the ten years of my visits to this patient, the general set-up remained much the same. The invalid always detailed a pathetic story of misery and pain. If I came on her unawares, I often found her the center of a family gathering, apparently much interested. Her whole expression would change instantly on discovering my presence. Morphine by rectum was substituted for the suppositories. Her emaciation finally became extreme, circulation gradually failed, and she passed into a stupor and died from extreme exhaustion.

The patient was cared for throughout her illness by a devoted sister, whose life was sacrificed to the invalid in this mission. She strongly resented any suggestion that the patient might ever have assisted herself. Much of the family income was secretly expended in foolish "cures." The sister was in a critical state of depression for many months following the invalid's death and a brother did not resume work for two years after the funeral.

This case, though medical involvements appeared during the course, was primarily, and essentially throughout, one of major hysteria. The girl had been perfectly healthy previous to her mother's death. She had been reared in surroundings of excessive patriarchal family devotion and had never been allowed to develop anything beyond a childhood capacity for meeting life. She was entirely incapable of adjusting herself to the new situation occasioned by her mother's death. Her inadequacy soon transferred itself into physical invalidism and all her energies were transformed into the morbid self-centered hypochondriac state into which she settled, and from which she finally died after a slow bodily and mental decay of twenty years' duration.

SUMMARY

The cases cited represent somewhat extreme instances of the extent to which apparent surgical and medical syndromes may mask the real disease, where mental factors become converted into bodily expression.

Less pronounced conditions of invalidism and organic disturbance are frequently brought about wholly, or are exaggerated, by mental or emotional maladjustments.

Consideration of the mental situation in no way, either by inference or in fact, presupposes any slighting of the organic agencies of disease.

Evaluation of mental factors necessitates study of the emotional life of the individual, knowledge of the family setting and, at times, a readjustment of environment and domestic relations.

In "frozen" cases such as 1 and 3, 'cracking up" the deadlock is well nigh impossible. Early detection of the morbid process, with firm and tactfully applied measures, will alone arrest the morbid infection.

Though in certain instances, as in case 2, it is conceded that a degree of organic change may be present, its relationship to the exaggerated symptoms could, at most, only be that of partly determining the sympathetic pathway to be followed by the neurosis.

121 University Place.

ABSTRACT OF DISCUSSION

DR. ALBERT M. BARRETT, Ann Arbor, Mich.: Dr. Wholey has directed attention to problems which in their nature have been most difficult to deal with, not only in diagnosis but also in practice. These difficulties lie in the complex interactions of psychic and physical factors, both in health and in disease, and the fact that psychogenic mechanisms can produce manifestations in the somatic or physical field closely resembling the symptoms of organic disorders commonly encountered in practice. The rigid lines of separation between what is organic or physical and what is functional or psychic are becoming less distinct in problems of physiology and clinical pathology, and concern is now found with the better formulation of how much is physical and how much is psychic. The lack of recognition of this interaction has often led to serious errors of diagnosis and treatment, which have occurred in all fields of medical practice. In a recent review of the past histories of 100 patients diagnosed in the Psychiatric Clinic, Ann Arbor, as psychoneurotic, it was found that 47 of these had previously undergone various surgical operations; 12 had appendectomies, 13 had some form of pelvic operation, and in 17 tonsillectomy had been performed. It would seem somewhat disproportionate that 47 of 100 patients whose fundamental disorder was psychic should have required such an amount of surgical treatment. This is further emphasized in the ineffectiveness of the operations on the illness or symptoms of the patients. But the problem of psychic causation and influences in diseases is far wider than the field of the psychoneuroses. How far reaching interrelations of psychic and physical are is revealed in recent knowledge gained in the field of constitutional pathology. It has been shown that certain types of psyche as manifested in the temperament are related to certain specific types of body formation. Cyclothymic temperaments seem to occur predominantly in those of pyknic type of body, and schizothymic temperaments are most frequently seen in those of asthenic type. There is also much evidence that certain somatic diseases tend to occur with greater frequency in certain specific types of somatic constitution and temperaments.

DR. MEYER SOLOMON, Chicago: I wonder whether it wouldn't be better instead of speaking of "organic" and "nonorganic" or "functional" disorders to speak of "pathologic

organic lesions" and "physiologic organic disturbances" of psychogenic origin. In emotion the bodily organs are shaken up and this shaking up is accompanied by chemical and metabolic disturbances and, no doubt, transient organic changes. Hence there are really physical organic changes but not of a permanent structural nature. Such a differentiation will be helpful and will make clear why loss of weight and many other things may occur in conditions of psychogenic origin. Often the general practitioner thinks that psychiatrists consider these bodily disturbances as being imaginary, which they do not. Though of psychogenic origin, their nature is physically organic. One thing that should be stressed in these cases is that what has happened to the patient often is that the emotional conflicts he has had (which he has either forgotten about or, if he remembers, he doesn't see in relationship to his present condition), and the fear, the anxiety, the general emotional upset were originally centered about some personal problems and later were transferred to the nervous, mental and bodily symptoms that he feels, and the fear therefore becomes firmly attached to his bodily, nervous and mental condition. It is well in handling such patients to point out to them in a definite way exactly what has happened. Dr. Wholey has stressed that in many of these cases there exist almost unsolvable personal and home situations, and no matter how cheerful and optimistic one may be in handling them, often they are really unsolvable. If the psychiatrist cannot acquire such a psychologic hold on the patient that his control is greater than the control of the member or members of the family under whose influence the patient may be, he is going to lose the fight.

DR. HARRY STACK SULLIVAN, Towson, Md.: I have made a research investigation of 260 patients suffering schizophrenic illnesses. In 70 per cent the presenting symptoms of illness were of a nature that brought the patient to the attention of a physician for something other than mental disorder. I have reached the conclusion that a considerable portion of preschizophrenic and actually psychotic youths might be saved from grave disorder and deterioration if the fact could be conveyed to the general practitioner and to the specialists in the fields that I have mentioned that this grave mental disorder frequently presents itself as fairly well disguised symptoms of various physical illnesses, treatment of which as such facilitates the destruction of the patient's self-confidence and the development of the grave disorder. Neurologists and psychiatrists have a great duty in educating the medical man to the importance of symptomatologic camouflage. This should be one of our principal activities as psychiatrists, on the one hand in influencing medical education, and, on the other, in dealing with all physicians who counsel with us and who are present as audience in joint meetings.

DR. CORNELIUS C. WHOLEY, Pittsburgh: This sort of paper was presented in the hope that it might reach the general ranks of the profession. I shall not attempt to take up in detail the points that have been brought out. The discussion, however, has emphasized the fact that the understanding of these cases is not sufficiently disseminated among general practitioners. I am satisfied that this can be partly explained by the serious defect generally existing in medical education. Many medical schools do not emphasize the importance of mental factors in disease either sufficiently or early enough in the course. A discussion of the psychic factors in disease processes should be begun at the same time as discussion of disease processes from toxic and infectious and other causes. It is just as essential. It plays an equally important rôle. Unfortunately, it is often left to the end of the course and then deals principally with the less important advanced insanities, neglecting the more important psychoneuroses. This emphasis on the insanities misleads and discourages the student. It gives him the impression that all mental ills are hopeless, since he does not have the opportunity of dealing with the large group of curable cases, cases that arise from hysterical and psychogenic factors. Nor is he usually taught to appreciate the mental element frequently present in medical and surgical cases. It is regrettable that some members of medical staffs still look on the course in psychiatry as a thing that has to be tolerated, seeming to have little appreciation of the vital import of psychiatry in general medicine.

HYPOTHYROIDISM *

LOUIS M. WARFIELD, M.D.
MILWAUKEE

It has been only within recent years that the mild states of hypothyroidism have received any attention. The most recent textbooks on diseases of the thyroid gland still devote considerable space to cretinism and myxedema but say very little, or do not mention at all, the group of cases which present symptoms which appear to be associated with lessened thyroid secretion but which never reach the stage of myxedema. That there is such a group of cases is attested to by articles now appearing in the literature from widely separated parts of this country. Kocher in 1904 was the first to call attention to this group as a possibility, but only since the development of clinical metabolimetry has it been possible to recognize the condition with any degree of accuracy.

The thyroid gland, unlike the pancreas or the suprarenal glands, is not absolutely necessary to maintain life. "It is not essential to thermostasis; nor is it essential to metabolic acceleration. Epinephrine exerts its calorigenic action even in the thyroidless animal." [1] Yet it is one of the most important of the endocrine glands as it is admitted to be largely the activator of all the body cells. Von Noorden has said, "The thyroid acts on oxidation as a pair of bellows rejuvenates a fire." De Quervain [2] gives four principal functions to the thyroid gland based on clinical experience and physiologic experiments: (1) control and stimulation of tissue growth in general; (2) control and stimulation of the functional processes of tissues; (3) neutralization of toxic substances produced in the normal metabolism of the tissues, and (4) assistance in the defensive action of the organism against bacterial toxins.

The majority of authors will agree to these four functions although not all are yet experimentally proved. The difficulty in assigning to certain more or less abnormal body states an endocrine etiology is notoriously fraught with pitfalls. There has been too loose reasoning from hypothetic and insufficient premises. The fact that there are undoubted cases of hypofunction of the thyroid, pancreas, suprarenal and pituitary glands should not lead one to assign too much of human woe to the endocrine glands.

Enough surveys of school children and college men and women have been carried out within the last few years to leave no doubt that there are definite goiter districts in this country; that is to say, districts where from 70 to 85 per cent of the young girls and women and 20 to 30 per cent of the young boys and men have simple goiter. Among these districts the Great Lakes basin rates high. Not only do human beings but all the species of animals as well as many species of fish have goiter. The soil is poor in iodine, the drinking water has only a trace. The story of the prophylaxis of goiter by the use of iodized table salt is well known. Goiter, then, is endemic in this region. Years ago Hector Mackenzie said that in any endemic goiter district the population would eventually show signs of more or less thyroid failure. Here in the Great Lakes basin we are seeing the third and fourth generations

* Read before the Section on Practice of Medicine at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

1. Means, J. H., and Richardson, E. P.: Oxford Monographs on Diagnosis and Treatment, New York, Oxford University Press 4, 1929.
2. De Quervain, Fritz: Goiter and Thyroid Diseases, New York, William Wood & Co., 1924, p. 184.

of the pioneers who came from the Eastern Seaboard, from Germany, Norway and Sweden, districts where goiter is rare. The settlers found a soil without iodine. The first generation obtained iodine from the mothers but owing to the lack of iodine in food and drink the mothers of each succeeding generation could not replenish their store in the thyroid gland and their daughters and granddaughters had less and less. Now we see not only endemic goiter but mild or moderately severe states of thyroid failure which have not yet reached the stage of cretinism as in some of the Swiss cantons. Now that the value of iodine in the prophylaxis of adolescent goiter is known and the obstetricians are giving pregnant women iodine, it is probable that future generations will not have the mild states of hypothyroidism seen today in such relatively large numbers.

I wish to emphasize that these cases are common and until rather recently have gone unrecognized, usually being put in the neurasthenic group or in the vague group known as a "run down condition."

All textbooks, including the recent monograph by Means and Richardson,[1] divide hypothyroidism into cretinism (sporadic or endemic), myxedema, and operative myxedema (Kocher's cachexia strumipriva). To this grouping of hypothyroid cases should be added masked or latent hypothyroidism, a condition in which certain symptoms are found, certain laboratory tests are found and the basal metabolic rate is low but in which there are none of the classic signs of myxedema.

ETIOLOGY

One must include in the etiologic factors the operation for subtotal thyroidectomy. Too frequently patients are operated on and are not observed subsequently. The operation is supposed to cure them and nothing to the contrary is said to them. Injuries to the thyroid gland in the course of infectious diseases have been considered a cause. Kocher called attention to mild states of hypothyroidism following severe general infections, typhoid, influenza, dysentery, furunculosis. De Quervain[2] states that "the slighter forms of hypothyroidism occur in patients whose glands have been damaged by an inflammatory affection or by endemic goiter." The latter cause would appear to be the most important one in a goiter region. Tuberculosis and syphilis are not causative factors. In women the period of onset of menstruation and again the cessation of menstruation seem important factors in etiology.

Ninety-five per cent of my patients were born in states bordering on the Great Lakes and had lived most of their lives in this region. Five per cent were born abroad or in states east of the Blue Ridge Mountains but had lived in this region since infancy or early childhood. Although this does not prove the influence of locality, it is interesting. Undoubtedly thousands of persons with slight degrees of thyroid failure are daily carrying on their work and pass as normal. It is not the degree of thyroid failure alone measured by the basal metabolic rate which bring on symptoms. There evidently is some unknown constitutional factor which is also operative.

SYMPTOMATOLOGY

One might say at the outset that there is no definite group of symptoms which characterizes the mild hypothyroidism cases. The neurasthenic syndrome comes nearest to it but that only shows how bizarre is the symptomatology. These people are not really ill; they are below par. They do not feel as well as they know they should. Many are teachers or executives who hold responsible positions, who are active and energetic but who feel conscious that they have to drive themselves to their tasks, and they tire out easily. A rest often makes them feel quite well again, but as soon as they are back at work the same weariness comes over them, especially at the end of the day's work. It seems as if there were no reserve on which the patient can call. His activities use up his store of energy and leave him nothing on which he can fall back. This sense of fatigue is one of the most constant and characteristic symptoms.

Constipation, a sluggishness of peristalsis, is the next most common symptom in my series. Deusch[3] has shown that thyroid extract acts on strips of intestinal muscle to improve the tonus and to lower the threshold of stimulus response. The constipation is a lack of tone, not any actual pathologic lesion. This symptom has been noted by all authors. Brown[4] has called particular attention to it in women over 40 who have a lowered basal rate.

Headache is common. At times it is of a distinctly migrainous character. Lawrence and Rowe[5] have reported such cases in which the diagnosis of migraine had been made over a period of several years. None of my cases were of this type but fifteen patients gave headache as the most important symptom, the pain usually being on top and moving toward the occiput.

Rheumatic aches and pains were complained of in a few cases. These were cases now prone to be labeled "focal infection."

Vague abdominal pains often diagnosed as chronic appendicitis are also complained of as the prominent symptom. This is important to bear in mind. Too many people are rushed into hospitals and have had unoffending appendixes removed. Needless to say, they are often worse after the operation. The pain is still there and confidence in doctors has been shaken.

Menstrual disturbances in women are not as frequent as one might think. There were five of my patients who were irregular, six who had scanty flow and six who had increased flow. Salzman,[6] in the period before clinical metabolimetry, reported cases of uterine hemorrhage in which a normal condition was restored by the feeding of thyroid extract.

The weight is exceedingly interesting. All descriptions of hypothyroidism (which is always a synonym for true myxedema) in textbooks call attention to gain in weight. This conception needs revision. Lawrence[7] has already specifically called attention to the underweight (not starved) hypothyroid. I can confirm his observation. In this series of 88 patients, 22 definitely complained of or were found to be underweight, 21 had gained in weight, and 45 did not vary more than any normal person would. The overweight patients complain that however little they eat they gain, the underweight patients complain that although they stuff themselves they cannot increase their weight.

Beck[8] reports cases of nycturia, pollakiuria, dysuria, oliguria and incontinence due to thyroid failure. In the urine were pus and squamous cells. Endothelial cells were shed prematurely. He considers that the lack of thyroid secretion is responsible for the urinary

3. Deusch, G.: Deutsches Arch. f. klin. Med. **142**: 1-31 (March) 1923.
4. Brown, T. R.: Tr. A. Am. Phys. **41**: 162, 1926.
5. Lawrence, C. H., and Rowe, A. W.: Endocrinology **12**: 377 (July-Aug.) 1928.
6. Salzman, S.: Am. J. Obst. **74**: 812 (Nov.) 1916.
7. Lawrence, C. H.: Boston M. & S. J. **190**: 307 (Feb. 21) 1924.
8. Beck, H. G.: Endocrinology **11**: 438 (Sept.-Oct.) 1927.

disturbances and for the shedding of the epithelium of the kidney tract.

Lee [9] has found cases of vasomotor rhinitis of months' duration in young adults in whom nothing abnormal was found but a low basal metabolic rate. Complete relief was obtained by the feeding of thyroid extract. This is a small group but is actually existent.

The classic symptoms of the textbooks, such as thick skin, dry hair, dry skin, susceptibility to cold, scanty eyebrows and pads of fat above the clavicles, are conspicuous by their absence. Occasionally, if asked a direct question, some patients will admit susceptibility to cold.

Physical Signs.—There are no physical signs characteristic of this group of mild hypothyroid cases.

No particular size or weight or body figure is found. The thyroid gland may or may not be visible or palpable.

The pulse rate and blood pressure vary as they do in any group of people. Occasionally one finds a rapid rate, from 90 to 110. This is noted in the literature by Higgins,[10] Lawrence [11] and others.

The lowest blood pressure among my cases was 90 systolic and 70 diastolic in a woman, aged 40, whose pulse rate was 64, whose basal metabolic rate was minus 30 per cent and whose lymphocytes were 20 per cent. The highest blood pressure was 190 systolic and 94 diastolic, the pulse rate 100, in a woman, aged 61, with a basal metabolic rate of minus 16 per cent.

The blood does not show constant changes. Kocher's original differential point, a relative lymphocytosis, is not invariably present but more than 30 per cent of large and small lymphocytes were found in one half of my cases. Occasionally chlorotic types of anemia,[12] and even pernicious-like [13] blood pictures, have been reported. Simple anemia is not infrequent.

The basal metabolism rates [14] in the series ranged from minus 11 to minus 32 per cent. Criticism might be directed against considering as hypothyroidism a figure so close to the so-called normal as minus 11 per cent. While the standard usually given for normal is ± 10 per cent, the ease with which an increased basal rate may be obtained, and the practical impossibility under test conditions of decreasing the rate, makes a consistent minus 10 per cent with symptoms significant for the diagnosis of hypothyroidism.

I do not wish to leave the impression that every patient who is found in the course of an examination to have a lowered basal metabolic rate is suffering from thyroid or any other endocrine gland failure. Many perfectly well persons are found to have a rate of minus 10 or lower. These may be mild posterior pituitary failures (Cushing [15] believes that there are many such persons in the population), mild ovarian failures or mild suprarenal failures or perfectly normal persons. Slightly lowered basal metabolic rates may be without any significance. The point to be stressed is that in a patient with certain indefinite symptoms, of which easy fatigability is the chief one, with no other cause after careful search and with a lowered basal metabolic rate, thyroid failure is to be seriously considered. If the problem is approached from this angle, a differential diagnosis being made in every case, then by therapy and careful observation it can be determined whether the diagnosis is correct or not.

Usually patients with hypothyroidism have had symptoms for many months, even years. It is not always easy to fix the time of the onset of symptoms. In a series of cases which Lawrence [7] reported, the average length of time of symptoms was eight years. The longest interval in my series was twelve years, the onset dating from an attack of measles followed by scarlet fever.

Blood Sugar.—One finds in the literature the statement that there is hypoglycemia in hypothyroidism. Janney and Isaacson [16] say that all hypofunction of the endocrine glands, of which the thyroid is an example, are accompanied by hypoglycemia. Geyelin [17] has reported very low blood sugar values in two cases of myxedema, 53 and 68 mg. per hundred cubic centimeters. Janney and Isaacson's cretin showed 65 and 70 mg. They also showed that within two weeks after thyroidectomy on dogs there was hypoglycemia and a prolonged sugar curve (increased tolerance). However, cases of untreated myxedema are reported in which there was mild glycosuria.

Lawrence and Rowe,[5] in their studies of cases of hypothyroidism (not myxedema), say that there is a slight hypoglycemic tendency in thyroid failure. If 110 mg. per hundred cubic centimeters is accepted as the upper level of venous blood sugar, then about one half of my cases in which blood sugar estimations were done show higher values. No case showed hypoglycemia. Although the number of my cases is not great, still the figures apparently show that in the type of thyroid failure dealt with in this paper hypoglycemia is not present.

DIFFERENTIAL DIAGNOSIS

It is often difficult but highly important to make an accurate diagnosis. It does not seem that it is necessary to go to the extreme in laboratory examinations that Lawrence and Rowe have done. It is doubtful whether one could persuade the average private patient to subject himself to such a variety of tests, especially when he found out what the cost probably would be. Physicians who are subsidized in large endowed clinics can carry on extensive and expensive studies on a limited number of patients. The information obtained is valuable and serves to further knowledge; but it is not practical to carry on elaborate investigations in the study of cases coming to private physicians in all parts of the land.

The most important single test in the differentiation of the hypothyroid group from other endocrine gland failures is the determination of the basal metabolic rate. Much has been said of the difficulties and fallacies of this test, to all of which I agree. *The fact remains, however, that no diagnosis of hypothyroidism can be made unless there is demonstrated a lowered basal metabolic rate.*

Lowered basal metabolic rates are found in pituitary failure, in ovarian failure and in suprarenal gland failure. Benedict says that inadequate protein intake will lower the basal rate independently of the remainder of the diet.

9. Lee, R. I.: M. Clinics N. America **8**: 1705 (May) 1925.
10. Higgins, W. H.: Incipient Hypothyroidism: Clinical Study, J. A. M. A. **85**: 1015 (Oct. 3) 1925.
11. Lawrence, C. H.: Endocrinology **11**: 321 (July-Aug.) 1927.
12. Warfield, L. M., and Greene, I. W.: J. Michigan M. Soc. **24**: 79 (Feb.) 1925.
13. Stone, C. T.: Ann. Int. Med. **2**: 215 (Aug.) 1928.
14. The Benedict-Roth machine with graphic attachment was exclusively employed and most meticulous care exercised to obtain accurate readings.
15. Davidoff, L. M., and Cushing, Harvey: Studies in Acromegaly: VI. The Disturbances of Carbohydrate Metabolism, Arch. Int. Med. **39**: 751 (June) 1927.
16. Janney, N. W., and Isaacson, V. I.: The Blood Sugar in Thyroid and Other Endocrine Diseases, Arch. Int. Med. **22**: 160 (Aug. 15) 1918.
17. Geyelin, H. R.: The Carbohydrate Metabolism in Hypothyroidism as Determined by Examination of Blood and Urine, Arch. Int. Med. **16**: 975 (Dec.) 1915.

Patients with pituitary failure have been shown to have a rather characteristic distribution of fat over the body. This is found on physical examination. Ovarian failure is so intimately associated with both pituitary and thyroid failure that it should cause no great difficulty in diagnosis. Careful thyroid feeding under rigid observation is of help in differentiation if doubt exists in the mind of the physician.

The important and most difficult differentiation is that between hypothyroidism and hyposuprarenalism. The metabolic rate in both is low, but the latter is never as low as the extreme figure obtained in the former.

Koehler's [18] average basal metabolic rate for 288 cases of hypothyroidism was — 26 per cent, for 63 cases of hyposuprarenalism — 17 per cent. He says that because of autonomic instability it was difficult to obtain accurate rates in the hyposuprarenal cases. He publishes charts showing the regular respiratory excursions of the hypothyroid contrasted with the very irregular excursions of the hyposuprarenal case. In a review of my cases, with this point in mind, I could not confirm his observations. Possibly there were no instances of hyposuprarenalism among my cases. He thinks that hyposuprarenalism may exist with a normal or even slightly elevated basal metabolic rate. I feel that there can be no hypothyroidism without a lowered basal rate.

In my experience the most common disease that has to be differentiated from mild hypothyroidism is occult tuberculosis. Unless there is malnutrition, the normal basal metabolic rate in tuberculosis and the presence of a very positive intradermal old tuberculin test are helpful differential points. One cannot make a diagnosis of hypothyroidism unless there is a lowered basal metabolic rate.

A sense of ill being is so common in the onset of many chronic diseases that only careful analysis of all the data obtained will prevent errors in diagnosis.

TREATMENT

If the diagnosis is correct, the treatment is specific. Either thyroid extract or dessicated gland can be used. There seems to be no valid reason for giving thyroxin, which has to be administered hypodermically or intravenously when administration of the gland substance by mouth will produce the desired result. The dose varies to some extent with the depression of the metabolic rate. Large doses are to be avoided. It is better to begin with a dose that will certainly not do harm, from 2 to 4 grains (0.13 to 0.26 Gm.) daily of thyroid extract, and then check the basal rate in from ten days to two weeks. For each individual there is an optimal dose which must be found by experiment.

It is neither necessary nor desirable to bring the metabolic rate to normal. I have patients who have been taking from 3 to 5 grains (0.2 to 0.3 Gm.) of thyroid extract daily for more than two years. In none of these is the metabolic rate up to minus 10. It is not the figure of the basal metabolic rate but the well being of the patient which is the criterion for dosage.

Occasionally it is found that, after the administration of small doses of thyroid extract for from ten days to two weeks, the next basal metabolic rate is appreciably lower than the initial rate. Squier [19] has noted this. Swaim,[20] working with arthritic patients, has called attention to this phenomenon and explains it by assuming that the thyroid extract produces lessened tension in an organism which lacks the normal amount of thyroid hormone. It is, of course, possible that the second estimation finds the patient accustomed to the machine and the operator and his relaxation is more complete. Nevertheless, in what appears to be perfect duplicate estimations on first and subsequent tests, the second may be from 10 to 12 per cent lower than the first.

18. Koehler, A. E.: Differential Diagnosis Between Hypothyroidism and Hyposuprarenalism, J. A. M. A. **91**: 1457 (Nov. 10) 1928.
19. Squier: Personal communication to the author.
20. Swaim, L. T.: Chronic Arthritis: Further Metabolism Studies, J. A. M. A. **93**: 259 (July 27) 1929.

SUMMARY

Mild to severe grades of hypothyroidism (not myxedema) are common among persons living in a goiter region such as the Great Lakes basin.

All classes of people are affected; a considerable proportion are professional men and women.

Both underweight and overweight as well as normal weight are found among the patients.

The most important single symptom is an undue sense of fatigue, a physical exhaustion which often leads to a neurasthenic state.

Other frequent symptoms are constipation, susceptibility to mild infections such as coryza, various aches and pains, and, in women, scanty or profuse menstruation.

General abdominal soreness, especially along the colon and in the right iliac fossa, is frequent.

Diagnosis cannot be made without evidence of a low basal metabolic rate, as there are no pathognomonic symptoms or signs for the mild hypothyroid state.

Differential diagnosis must be made from other endocrine gland failures, especialy suprarenal, posterior pituitary and ovary: from such chronic diseases as (1) occult or incipient tuberculosis, (2) diabetes, (3) chronic nephritis, (4) pernicious anemia and other blood diseases.

Rheumatic aches and pains and headaches of a migraine type may be due to thyroid failure.

Thyroid extract can only normalize the nutritional needs of the body and should never be administered to reduce weight in individuals with normal thyroid function.

193 Prospect Avenue.

ABSTRACT OF DISCUSSION

DR. T. L. SQUIER, Milwaukee: The subject Dr. Warfield has presented is of great interest, especially in this region. The view that in the Great Lakes basin, where goiter is prevalent, mild grades of thyroid insufficiency should be expected is fascinating and plausible. The number of lowered metabolism cases seen in the group usually classed as neurasthenic who complain of chronic fatigue is striking and the improvement in general well being of many in this group under thyroid therapy is most gratifying. Lowered metabolism can be caused by many factors other than hypothyroidism and even the therapeutic test does not establish a diagnosis. However, when improvement occurs one must wonder whether it results from actually supplying a thyroid lack, from pure psychotherapy, or from other unknown factors.

Almost without exception, those who have followed patients of the type described by Dr. Warfield have been impressed by the marked benefit seen after thyroid therapy. It is to be hoped that sometime it will be possible to make a differential diagnosis between hypometabolism and hypothyroidism. In the meantime the empiric use of thyroid extract, controlled by frequent metabolism tests, in those patients with a lowered rate who have symptoms, seems logical and justified.

DR. C. N. HENSEL, St. Paul: Since I have been recognizing and treating for the past three years such patients as Dr. Warfield has just described, I can heartily endorse what he has said. The profession is still imbued with the idea that under-

functioning of the thyroid gland is characterized by a myxedematous infiltration of the skin, increased body weight and mental sluggishness. In the absence of this syndrome, physicians do not even think of underfunctioning of the thyroid gland as a cause of fatigability and a feeling of incapacity either mental or physical. It is surprising how few patients with an underfunctioning thyroid gland are overweight, have a rough dry skin, or falling hair. Certainly half of my hypothyroid patients are of normal weight and possibly one fourth are even below weight, so that one cannot go on the objective manifestations but must accept the patient's subjective sensations, the first and most constant complaint being fatigability. Unlike the neurasthenic who hides behind his symptoms, the hypothyroid patient is annoyed with his inadequacy. One is surprised to find in this hypothyroid group plenty of active alert mental workers—executives, writers, school teachers, physicians, the lean type, the active driving type, sales managers, those who are trying to put energy into other people. Since I began to recognize this syndrome as a clinical entity and check my impressions by basal metabolimetry and institute treatment with desiccated thyroid gland, I have been amazed to see how many people have been helped back to a state of comfortable well being. I have even recalled my office patients whom I was unable to help four or five years ago, checked their basal metabolic rates, found them low, given them thyroid extract and seen them become happier, more vigorous and more efficient.

DR. LEOPOLD LICHTWITZ, Altona, Germany: Hypothyroidism may sometimes be an independent disease. In other cases, of course, hypothyroidism is a part of other disturbances. Hypothyroidism, especially, may be the result of starvation. It is also known that it is a part of disturbances of the pituitary body, especially of atrophy or destruction of the anterior lobe. In these cases the basal metabolism is also low (— 30 per cent). From the clinical point of view, it is important to note that there are cases of hypothyroidism in which severe anemia is a symptom. I remember, for instance, the case of a woman, aged 30, who suffered from a severe anemia for which she had been treated without result for a long time. One week after beginning the administration of thyroidin, the anemia disappeared and the blood pressure was normal. The retention of water in the hypothyroid condition is remarkable. This water is removable from the body only by means of thyroidin. As Boothby found (and I have been able to confirm his work) the output of this fluid is in close relationship to the output of nitrogen. This means that the fluid retained in hypothyroidism consists of a certain amount of protein. In addition to the state of general hypothyroidism, the occurrence of symptoms of partial hypothyroidism, which are of especial interest in the condition of general hyperthyroidism, must also be taken into consideration. In some cases of exophthalmic goiter, evidences of hypothyroidism make their appearance in later years. It is rather difficult to understand this combination, but it is perhaps possible to do so if it is considered that the function of hormones generally consists of four parts: 1. The material for the formation of hormones. (In the case of thyroxine this material is thyrosine and *p*-oxphenylalanine.) 2. The formation of the hormone from the mother substance in the cells of the endocrine glands. 3. The excretion of the hormone from the cells. 4. (I believe this is a very important consideration.) The ability of every tissue, organ, and cell to take the hormone from the blood. I suggest that in some cases of disease due to hormone deficiency the fault may lie in the inability of the tissue to fix the hormone. If this fault concerns parts of the tissues only (the skin, for instance) a partial hypothyroidism is possible, even though general hyperthyroidism is present.

DR. LOUIS M. WARFIELD, Milwaukee: One important point to remember, is that thyroid extract is a potent substance and those who give thyroid extract with the expectation of reducing weight should bear in mind that weight reduction, while it may occur, is often accompanied by symptoms so serious that the weight reduction itself is due to the toxicity and not to the beneficial effect of the thyroid extract. Thyroid extract can only normalize the nutritional needs of the body and should never be administered to reduce weight in individuals with normal thyroid functions.

INTRADERMAL, SCRATCH, INDIRECT AND CONTACT TESTS IN DERMATOLOGY

A COMPARATIVE STUDY *

MAXIMILIAN A. RAMIREZ, M.D.
AND
JOSEPH JORDAN ELLER, M.D.
NEW YORK

This presentation is a report of a comparative study of four types of sensitization tests on a series of 500 patients with dermatoses in whom the etiology was suspected to be of allergic origin. From 200 to 400 tests were done on each patient.

TABLE 1.—*Total Number of Cases Tested, Divided into Groups*

Clinical Diagnosis	Number of Cases	Clinical Diagnosis	Number of Cases
		Contact dermatitis—Cont.	
Urticaria	126	Quinine	4
		Procaine	4
Herpes labialis (recurrent)	8	Ephedrine	4
		Fox fur (undyed)	2
Angioneurotic edema	18	Beaver (undyed)	1
Neurodermatitis (pruritus with lichenification)	77	Glue	2
		Poison ivy	16
		Primrose	1
Dermatitis medicamentosa	46	Dandelion	1
Potassium iodide (intravenous)	14	Pollen:	
Potassium iodide (mouth)	8	Ragweed	4
Phenolphthalein	2	Timothy	1
Dover's powder (ipecac)	1	Pyrethrum	8
Sodium bromide	11	Kapok	2
Phenobarbital	6	Silk	18
Salicylic acid	4	Rayon	1
		Wool	4
		Cat hair	1
Endogenous eczematoid dermatitis	114	Dog hair	1
		Horse hair	4
		Human hair	1
Contact dermatitis	105	Cotton	1
Zinc oxide	1	Flax (linen)	1
Iodine	2	Orris root	9
Creosote	1	Rabbit hair	1
Glycerin	1		
Ursol (fur dye)	2	Photodermatitis, sunlight	4
Barbasol	2		
Newspaper:		Thermodermatitis	2
Brown section	2	Cold air	1
Daily paper	2	Heat	1

The dermatologist of today is making an earnest effort to treat the various dermatoses from the standpoint of their specific etiology. We realize that many dermatologists are discouraged at the lack of aid which they have obtained in the past from sensitization tests.

TABLE 2.—*Cases Giving Positive Skin Reactions by One or More Methods*

Total Number Tested	Clinical Diagnosis	Number of Cases	Percentage
126	Urticaria	96	76.2
8	Herpes labialis	6	75.0
18	Angioneurotic edema	12	66.7
77	Neurodermatitis	52	67.5
46	Dermatitis medicamentosa	2	4.3
114	Endogenous eczematoid dermatitis	98	85.9
105	Contact dermatitis	92	87.6
4	Photodermatitis	4	100.0
2	Thermodermatitis	2	100.0

As a result of the observations herein presented, we are convinced that one may be more optimistic in this regard.

It is most important that sensitization tests be interpreted by one who is experienced. A sufficient number

* From the Departments of Immunology and Dermatology of the French Hospital.

* Read before the Section on Dermatology and Syphilology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

of tests must be done to include all sources of exposure in each case. Tests should be repeated several times by different methods if indefinite or suspicious reactions are obtained to a suspected substance. In interpreting reactions one should realize that patients at times are in

TABLE 3.—*Number of Cases Proved to be Caused by Substance Giving Positive Skin Reaction*

Total Number Tested	Clinical Diagnosis	Reacting to Tests, Number	Proved as Due to Substance Giving Positive Reaction		Substance
			Number	Per Cent	
126	Urticaria	96	14	14.5	
8	Herpes labialis	6	1	16.7	Chocolate
18	Angioneurotic edema.	12	4	33.3	Fish, celery, brazil nut
77	Neurodermatitis	52	3	5.7	Wheat, barley, egg
46	Dermatitis medicamentosa	2	2	100.0	Phenolphthalein Dover's powder
114	Endogenous eczematoid dermatitis	98	9	9.0	
105	Contact dermatitis	92	81	88.0	
4	Photodermatitis	4	4	100.0	
2	Thermodermatitis	2	2	100.0	

a so-called refractory state and will not react even to substances to which they are highly sensitive. Also during a state of skin hyperirritability a wheal and erythema may occur at every tested area, including the controls. This state of skin hyperirritability may be fairly localized or generalized. It may be temporary or persistent, in which case it is practically impossible to interpret skin reactions accurately. In these cases the indirect method of testing is of particular value and is the method of choice. Thorough catharsis and rest in

TABLE 4.—*Cases Failing to Give Positive Skin Reactions to Substances Proved to be the Cause of the Dermatosis* *

Total Number Tested	Clinical Diagnosis	Cases, Number	Due to Specific Substance, Number	Per Cent	Substance
126	Urticaria	30	0	0.0	
8	Herpes labialis	2	0	0.0	
18	Angioneurotic edema	6	2	33.3	Whisky; mushroom
77	Neurodermatitis	25	0	0.0	
46	Dermatitis medicamentosa	44	44	100.0	
114	Endogenous eczematoid dermatitis	16	10	62.5	Banana, 1; orange, 2; excess fats, 4; excess carbohydrates, 3
105	Contact dermatitis	13	3	23.0	Newspaper, 1; barbasol, 1; quinine, 1
4	Photodermatitis				
2	Thermodermatitis				

* Proof is based on disappearance of symptoms by withdrawal of offending substance and recurrence on renewed exposure.

bed on a limited diet will often lessen the irritability of the skin.

The accompanying tables show in tabulated form the results of sensitization tests in the present series of cases.

The following are case histories taken from our series and presented because of their unusual interest:

REPORT OF CASES

CASE 1.—A boy, aged 11, had had asthma and persistent dermatitis for the past two years, with occasional periods of freedom and with definite exacerbations every week-end. The boy made a practice of visiting his uncle on a farm every week-end throughout the year and slept in the same bed with him. After protracted testing and investigation, it was shown that the asthma and dermatitis were both due to a specific hypersensitiveness to human hair (uncle's hair). Tests with extracts of hair from other members of the family were negative. At first it was thought that possibly something in the bed or room on the farm was responsible rather than the hair. The uncle was prevailed on to spend one week-end in New York and sleep in the same bed with the patient, who had always been free from asthma in New York. The child had a severe

TABLE 5.—*Results of Different Methods of Testing in Groups Giving Positive Reactions*

Total Number Tested	Clinical Diagnosis	No. of Cases	Scratch		Intradermal		Patch or Contact		Indirect or Passive Transfer	
			No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
126	Urticaria	96	88	92.6	96	100.0	0	0.0	3	3.1
8	Herpes labialis	6	6	100.0	6	100.0	0	0.0	0	0.0
18	Angioneurotic edema	12	9	75.0	12	100.0	0	0.0	1	8.3†
77	Neurodermatitis	52	52	100.0	48	92.3	0	0.0	1	1.9‡
46	Dermatitis medicamentosa	2	2	100.0	2	100.0	0	0.0	0	0.0
114	Endogenous eczematoid dermatitis	98	98	100.0	98	100.0	0	0.0	1	1.0
105	Contact dermatitis*	92	67	72.8	73	79.3	76	82.6	13	14.1
4	Photodermatitis	4	..	....	..	....	..	....	0	0.0
2	Thermodermatitis	2	..	....	..	....	..	....	0	0.0

* Table 6, "contact dermatitis." † Fish. ‡ Barley.

attack of asthma and an exacerbation of the dermatitis. The following week-end the boy was instructed to go to the farm, and to sleep in a room, not with his uncle. The result was absolute freedom from symptoms.

CASE 2.—A Negro man, aged 54, had had almost daily attacks of giant urticaria and angioneurotic edema involving various parts of the body during the past two years. Repeated tests and treatments were of no avail. The removal of a definitely abscessed tooth caused an immediate and permanent disappearance of all symptoms. A culture taken from the socket and

TABLE 6.—*Results of Individual Methods of Testing in "Contact Dermatitis"*

Clinical Diagnosis	No. of Cases	Scratch		Intradermal		Patch or Contact		Indirect or Passive Transfer	
		No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
Poison ivy	16	0	0.0	0	0.0	16	100.0	0	0.0
Primrose	1	0	0.0	1	100.0	1	100.0	0	0.0
Dandelion	1	1	100.0	1	100.0	1	100.0	0	0.0
Ragweed	4	4	100.0	4	100.0	2	50.0	3	75.0
Timothy	1	1	100.0	1	100.0	0	0.0	0	0.0
Pyrethrum	8	8	100.0	8	100.0	8	100.0	0	0.0
Kapok	2	2	100.0	2	100.0	1	50.0	0	0.0
Silk	18	18	100.0	18	100.0	18	100.0	4	22.2
Rayon	1	1	100.0	1	100.0	1	100.0	0	0.0
Wool	4	3	75.0	4	100.0	4	100.0	0	0.0
Cat hair	1	1	100.0	1	100.0	0	0.0	1	100.0
Dog hair	1	1	100.0	1	100.0	0	0.0	0	0.0
Horse hair	4	4	100.0	4	100.0	2	50.0	4	100.0
Human hair	1	1	100.0	1	100.0	0	0.0	0	0.0
Cotton	1	1	100.0	1	100.0	1	100.0	0	0.0
Flax (linen)	1	0	0.0	1	100.0	1	100.0	0	0.0
Orris root	9	9	100.0	9	100.0	0	0.0	0	0.0
Rabbit hair	1	1	100.0	1	100.0	0	0.0	0	0.0
Zinc oxide	1	0	0.0	0	0.0	1	100.0	0	0.0
Iodine	2	0	0.0	0	0.0	2	100.0	0	0.0
Creosote	1	0	0.0	0	0.0	1	100.0	0	0.0
Glycerin	1	0	0.0	0	0.0	1	100.0	0	0.0
Paraphenylendiamine (ursol)	2	0	0.0	0	0.0	2	100.0	1	50.0
Barbasol	2	0	0.0	0	0.0	2	100.0	0	0.0
Newspaper	4	2	50.0	4	100.0	1	25.0	0	0.0
Quinine	4	0	0.0	0	0.0	2	50.0	0	0.0
Procaine	4	1	25.0	1	25.0	4	100.0	0	0.0
Ephedrine	4	3	75.0	4	100.0	1	25.0	0	0.0
Fox	2	1	50.0	1	50.0	1	50.0	0	0.0
Beaver	1	0	0.0	0	0.0	0	0.0	0	0.0
Glue	2	2	100.0	2	100.0	2	100.0	0	0.0

from the root of the tooth showed a pure growth of *Streptococcus hemolyticus* and a testing suspension prepared from this organism gave a very strongly positive skin reaction by the intradermal method. Passive transfer tests were negative.

CASE 3.—A boy, aged 11, was sensitized to silk. The avoidance of contact with silk resulted in an almost complete disappearance of the skin lesion and an exacerbation on renewed contact. This case is presented because of the typical clinical appearance and history of neurodermatitis.

CASE 4.—A woman, aged 32, for the past five years had had a pruritic eruption on the face, neck and hands. These symptoms began during the last week of August or the early part of September and lasted until the middle of October. In 1928, the eruption persisted until December. There was no history of asthma, hay-fever, urticaria or migraine. The family history was negative. Skin tests were positive to giant and short ragweed by the scratch, the intradermal and the patch method of testing. Passive transfer tests were also positive. A series of injections with mixed ragweed, started in March, 1929, and continued until October, 1929, proved successful. The patient had no discomfort throughout the ragweed season. Without outlining in detail the case histories of other ragweed dermatitis cases, we wish to point out that two of our patients who also had symptoms of hay-fever and reacted positively to scratch and intradermal tests did not react by the patch or contact method of testing. One gave a positive passive transfer and the other did not. Both of these patients were free from symptoms following immunization.

CASE 5.—A chauffeur, aged 26, had had hay-fever in the spring and fall for the past eight or ten years. He had had a persistent pruritic eruption on the face and hands for the past

TABLE 7.—*Comparison of Methods in Cases Proved to be Due to the Substance Giving a Skin Reaction*

Total Number Tested	Clinical Diagnosis	No. of Cases	Scratch		Intradermal		Patch or Contact		Indirect or Passive Transfer	
			No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
126	Urticaria	14	10	71.4	14	100.0	0	0.0	3	21.4
8	Herpes labialis	1	0	0.0	1	100.0	0	0.0	0	0.0
18	Angioneurotic edema	4	4	100.0	4	100.0	0	0.0	1	25.0
77	Neurodermatitis	3	3	100.0	3	100.0	0	0.0	1	33.3
46	Dermatitis medicamentosa	2	2	100.0	2	100.0	0	0.0	0	0.0
114	Endogenous eczematoid dermatitis	9	9	100.0	9	100.0	0	0.0	1	11.1
105	Contact dermatitis	81	67	82.7	73	90.1	76	93.8	13	16.0
4	Photodermatitis	4	..	....	..	....	..	....	0	0.0
2	Thermodermatitis	2	..	....	..	....	..	....	0	0.0

two years. It started in August, 1927, and with brief periods of improvement had persisted ever since. Skin tests were strongly positive to timothy, June grass, ragweed, and pyrethrum by scratch and intradermal tests. A positive patch test was obtained only to pyrethrum. Passive transfer tests were negative. Cases of pyrethrum dermatitis are well known to dermatologists. The reason for reporting this case is that it was definitely proved that the source of contact was "Flit," which was used by the patient to spray the inside of the car several times a week. Another point of interest is that a positive patch test was obtained in this case to pyrethrum, which was eventually shown to be the important etiologic factor and a negative patch test to the other pollens which, though responsible for the associated hay-fever, were not related to the dermatitis.

CASE 6.—A girl, aged 17, had a dermatitis on the neck, chest, arms, legs and abdomen of two years' duration. There was no history of hay-fever, asthma or urticaria, and the family history was negative for these conditions. Skin tests were negative except to an extract of rayon, which gave a strongly positive reaction by the scratch, intradermal and patch methods but a negative passive transfer. Rayon is made from a vegetable fiber or from wood pulp. It is impossible to determine the exact source of the rayon used in the manufacture of a given piece of material, as many varieties are usually used in making up a single piece of cloth. This case was absolutely negative to real silk and was cured on removal of contact with rayon.

CASE 7.—A woman, aged 42, had had asthma and urticaria for the past three months. The symptoms appeared only after retiring in her own room, where she had lived for many years. It was found that change of environment immediately relieved the asthma as well as the urticaria and a return to her own room caused a return to the symptoms. After much investigation a definite sensitization to a green penicillium was established. A culture of this fungus was obtained by exposing Sabouraud plates in her room. Positive skin tests were obtained with a saline extract by the scratch and intradermal methods of testing and a positive passive transfer of reacting antibodies demonstrated. The patient is still under treatment with injections of an extract of the mold to which she is specifically sensitive. She also has changed her residence and has been free from all symptoms.

CASE 8.—A woman, aged 36, had a dermatitis due to sensitization to the rotogravure section of a Sunday newspaper and also to the daily newspaper. We have had several such cases associated with perennial sneezing and one case with mild paroxysms of dyspnea. This patient had a dermatitis of both hands of two years' duration. A positive skin reaction was obtained by the scratch, intradermal and patch methods to both the rotogravure and the ordinary daily newspaper. Tests with pure para red, with black printers' ink, with printing paper before it went to press, and with extracts of wood pulp from willow, birch and spruce (which are the trees ordinarily used in making paper) were all negative. Repeated tests with the printed newspaper itself were positive. Absolute avoidance of contact resulted in a complete disappearance of the dermatitis in a few weeks and a recurrence after a week of renewed exposure.

CASE 9.—A man, aged 52, had had a dermatitis in the region of the upper lip and sides of the nostrils for the past two months, and also asthma for twelve years. By skin tests as well as by removal of the offending substance and again by renewed exposures, it was proved that the dermatitis was due to sensitization to ephedrine used in a nasal spray. It is interesting to note that the same ephedrine nasal spray had been used daily by the patient for about two years without skin symptoms, and that only within the past two months did the dermatitis appear.

CASE 10.—A woman, aged 22, had had a recurrent dermatitis of both hands for the past three years. Extracts prepared from dust obtained from old books in her father's library, which she handled and arranged almost every day, produced a positive skin reaction. Tests to leather and paper were negative. There was a positive reaction to glue and to several fish extracts. Ingestion of a large amount of fish caused an attack of urticaria and severe headache.

CASE 11.—A dentist, aged 32, had had a recurrent dermatitis of both hands and face for the past eight months. There was no history of asthma or hay-fever but occasional attacks of generalized urticaria. Tests demonstrated the cause of the dermatitis to be ethyl alcohol. A reaction was obtained by the intradermal and the patch methods, but the tests were negative with the scratch and the indirect methods. Avoidance of contact resulted in a disappearance of the persistent eruption, and renewed exposure caused a recurrence.

CASE 12.—A man, aged 39, had had recurrent attacks of urticaria on the hands and face for the past two years. Wheals appeared only on exposure to cold air. There was no history of asthma or hay-fever. The family history was negative. Exposure to cold air produced an urticarial eruption within one minute. Applications of ice and other skin tests were negative.

SUMMARY AND CONCLUSIONS

Sensitization tests are a distinct aid in the diagnosis of dermatoses if carefully performed and interpreted.

A thorough and complete immunologic survey must be done in each individual patient and tests repeated when necessary.

The patch or contact method of testing is superior to other methods in determining susceptibility to external irritants, particularly those of nonprotein structure.

The intradermal method of testing is more sensitive than the scratch. It is more apt to produce false local

reactions as well as alarming systemic reactions in the highly sensitive. It is preferable to use the scratch method first and check up with the intradermal.

The indirect method of testing, using the principle of local passive transfer as demonstrated by Prausnitz and Kustner, has its field of distinct usefulness. This is particularly true in very young children in whom it is difficult to do a large series of tests. It is also useful in patients with a persistent hyperirritability of the skin and when the dermatosis covers such a large area that direct testing would be impracticable. The indirect method of testing has its limitations. One cannot always demonstrate the presence of specific reagins even in cases proved to be specifically sensitive. It is not especially useful in cases hypersensitive to external excitants of nonprotein nature.

383 Park Avenue—100 West Fifty-Ninth Street.

ABSTRACT OF DISCUSSION

DR. F. J. EICHENLAUB, Washington, D. C.: The authors present a large number of figures relative to the relation of allergy to various dermatoses. Before considering their figures in detail I would emphasize the fact that their concept of the subject is a broad one. Broadening one's conception will strengthen one's knowledge. They include everything causing the phenomena recorded. In table 4 are recorded four cases of endogenous eczematoid dermatitis due to an excess of fats and three to an excess of carbohydrates. I believe that most dermatologists would regard these cases as eczema of metabolic origin, rather than allergic in the commonly accepted sense. Some of the cases recorded could in actual practice be correctly ferreted out from an intelligent history and from the appearance of the lesions. This is particularly true in many cases of dermatitis venenata and urticaria. Thus, the various tests are often unnecessary in ordinary practice, although invaluable for scientific analysis in such papers as this. It is perhaps fortunate that such is the case. In this study I note, for instance, that in table 3 tests were made in 500 cases. Of these, 362 gave positive reactions but only 120 cases proved to be attributable to the substances to which they reacted. In table 4 I note that 136 failed to give positive reactions to any of the tests, although in 57 of these the cause was discovered by other methods. In spite of these seemingly discouraging figures, I believe the present study is a cause for distinctly more optimism in this field. In my own work I have found the scratch and intradermal methods of testing sensitization discouraging. With the addition of contact testing and passive transfer, however, many puzzling cases may be solved which now resist efforts at treatment. With the data given here and in similar papers I think the present position of sensitization testing for ordinary practice can be summarized as follows: 1. In a majority of cases the causative factor can be elicited by the combination of intelligent history taking and clinical experience. 2. In the smaller number of cases that resist ordinary methods the use of any or all of the methods outlined in this paper should be vigorously pursued in an effort to detect the etiology. 3. Possible constitutional factors in many of the cases, particularly in neuroses, should not be overlooked.

DR. HARRY M. HEDGE, Chicago: I wish to ask for a little more information regarding three cases I observed during the last year. The patients were sent to the sensitization department to determine their activity to silk. They had a lichenified eruption and all cases resembled one another. There was marked itching and lichenification and it was determined that each of the patients was sensitive to silk. I took sections of their own dresses and sections from a silk smock belonging to the secretary in the social service department, and sections of my tie, which was silk, and fastened them on their arms, one wet and one dry, and none of these individuals responded to the scratch test. They claimed to be very sensitive and to be troubled even when riding on a street car or bus next to a silk dress, and to be unable to wear any silk, including hose. I notice that these investigators have found a large percentage of positives, and I wish to know why these patients did not show any reaction to the scratch test. Their idea was that when they were away from silk they had no difficulty. I should like to know whether there was anything in the mental element in these cases.

DR. WALTER J. HIGHMAN, New York: When the Wassermann reaction burst on the public, the words Wassermann and syphilis became synonymous. Repeatedly, with scientific methods of considering diseases, a patient will be thought not to have eczema if he does not have a positive scratch test. This is not due to the investigators. The tests indicate the way in which many eczemas may be produced. It is not necessarily implied that since these tests exist everything about the disease is known, or that these tests are optimal for every case. The procedure is merely one way of studying such cases. The fact that the tests do not always work with subjects in whom they should, or that they do work in subjects in whom they should not, indicates only the human limitations involved. Ultimately I hope these problems will be worked out, but dermatologists should not get into the state of mind that, because they have another method of approaching the problem, the problem will necessarily be solved by the application of only this method. Unfortunately, syphilis has survived the misinterpretation of the significance of the Wassermann reaction. The patch test is not eczema.

DR. FRED WISE, New York: Many cases of neurodermatitis are seen in New York, and tests have been disappointing. In view of the fact the neurodermatitis often occurs in association with asthma and hay-fever, one would expect that, in this disorder, positive skin tests would be more likely to be obtained. As a matter of fact, I have been unable, both in the office and at the clinic, to obtain positive tests in neurodermatitis. Many still consider neurodermatitis to be a form of eczema; but the fact that the patch test in the hands of Drs. Ramirez and Eller is usually negative, and the scratch test often positive, indicates that the two diseases are inherently different types of skin disease and it would be gratifying to me if the men who see a large number of these cases in different cities would make these tests that have been described and report their results at future meetings, especially in neurodermatitis.

DR. MARION B. SULZBERGER, New York: The discussion has centered about the value of skin tests and the comparative value of the different types of tests. There is only one way to ascertain this, and that is by statistics. They all differ, depending on how they are carried out, and there is a great variation in the results obtained by different men. This is only natural. A man must be a detective to find the cause of an obscure dermatitis. Sometimes very small things will give a clue, and it is really more detective work than other branches of medicine, although all diagnoses seem to me a higher form of detective work. I agree absolutely with what Dr. Wise said regarding neurodermatitis. I sometimes think that a neurodermite belongs more to the urticarial than to the eczematous type of eruption. Frequently papular urticarial elements are seen which are reactions of the very superficial regions of the cutis. I believe that many cases of neurodermite may be intermediate between urticaria and true eczema in their pathogenesis. I think, in this connection, that something more can be worked out about neurodermite, and it would be interesting to have statistics of the frequency of occurrence of urticaria and neurodermite in the same patients.

DR. M. W. RUBENSTEIN, Pittsburgh: Professor Gans pointed out that neurodermatitis has its origin in the urticarial type of lesions. This contention is evidently borne out by the remarks of the authors and by the scratch test, that neurodermatitis does not belong to the vesicular or eczematoid type of reactions but does belong to the urticarial group.

DR. MAXIMILIAN A. RAMIREZ, New York: There is great danger of becoming overenthusiastic about any method that is in popular favor. This is true not only in dermatology but in many other things. The term "allergy" is so loosely employed now that a stage has been reached in which no one knows what allergy is or what is being talked about.

RELATION OF INFECTION OF THE EAR AND INFECTION OF INTESTINAL TRACT IN INFANTS

RESULTS OF FIVE YEARS' STUDY *

D. E. S. WISHART, M.B.

Assistant Surgeon, Department of Laryngology, Hospital for Sick Children; Junior Demonstrator, Department of Otolaryngology, University of Toronto Faculty of Medicine

TORONTO

This paper is an attempt to answer the question: Is infection of the mastoid the cause of acute intestinal intoxication in infants?

During the past five years this question has been intensively studied by pediatricians and otologists in Canada and the United States. The literature has been ably reviewed by G. M. Coates.[1] The students of this problem are at present roughly divided into two widely divergent camps: those who believe that infection of the mastoid is the cause of acute intestinal intoxication in infants and those who believe that it is not. Physicians and surgeons of eminence are to be found in each camp, but the majority of their papers support, to some extent, the idea that infection of the mastoid antrum may be the cause of this mysterious disease.

THE DISEASE

An intense form of gastro-intestinal disease affecting infants under 2 years of age, occurring apparently in epidemics, and exceedingly fatal in its effects, is known under several titles, of which acute intestinal intoxication, acute infectious intoxication and cholera infantum are the most frequently used. The disease is not peculiar to any one section of Canada or the United States but has appeared in the North, in the South, in the East and in the West. In the opinion of our medical staff, the symptom complex which appears in Toronto is essentially the same as that which exists in other parts of the country. Our conclusions, obviously, are based on the type that we have seen.

The study of this disease has been pursued in many ways at the Hospital for Sick Children, Toronto, for the past five years. Each year details have been discovered that were unobserved in the previous year's study and new avenues for research have been considered and followed. The subject is still being investigated and at the present time a large staff is occupied with various lines of research. Much valuable information has been amassed in this time. The present paper deals more particularly with the otologic aspects of the problem. A preliminary report on the medical aspects of the problem has recently been presented by Dr. Alan Brown, physician-in-charge of the hospital, before the Southern Medical Association. He described the disease as follows:

> Acute intestinal intoxication is a distinct clinical entity. The condition is characterized by three cardinal signs and symptoms; namely, diarrhea, vomiting and drowsiness.
>
> The history usually obtained is that the illness starts with diarrhea, followed by vomiting and drowsiness. The vomiting occurs two to ten times a day. The stools, which are five to ten a day, are loose and watery and sometimes contain mucus, but not the pus and blood seen so frequently in dysentery. The degree of drowsiness varies even in the same infant. In the mild and moderately severe cases the infant may appear quite bright when aroused. Even the disturbance produced by undressing the infant may be sufficient to dispel any evidence of drowsiness. For this reason the patient should be carefully observed before being disturbed in any way. When aroused the infant has a shrill, piercing cry, although in the severe cases the cry may be only a weak moan. The temperature rarely exceeds 102 or 103 F. The color of the skin is ashen gray, the eyes are sunken, the hands and feet are cold and clammy and either cyanosed or gray in color. Dehydration is invariably present, as shown by loss of elasticity of the skin. The liver is usually enlarged. In many instances infections of the upper respiratory tract, including the ears and mastoids, are encountered.
>
> The condition occurs not only in the undernourished marantic infant with a history of previous gastro-intestinal disturbances, but likewise in infants of normal weight with no history of previous trouble. It is a disease chiefly of the free dispensary class, being rarely encountered in well-to-do families, although we have seen an occasional case in this latter group.

Appearance of infant suffering from typical acute intestinal intoxication.

> The course of the disease may be very rapid, some infants dying within twenty-four to forty-eight hours of the onset of drowsiness in spite of any treatment employed. In other cases the drowsiness disappears and the vomiting ceases within twenty-four hours of the institution of treatment and the infants make an uneventful and usually rapid recovery. The remaining patients continue to vomit slightly and are drowsy for many days before they make the turn one way or the other. The mortality in the severe cases is very high, being well over 50 per cent. This is irrespective of the previous nutrition of the infant. In fact, the large, rather fat infant frequently shows the least resistance to the disease.
>
> The pathological findings recorded have given little help as to the etiology of the condition. No consistent pathological changes have been recorded.
>
> Many theories have been advanced in recent years as to the etiology of acute intestinal intoxication, such as: (1) the production of some toxic substance from the food by decomposition; (2) improper foods; (3) infection of the intestinal wall with bacteria, or (4) abnormal absorption of catabolites from the bowel. Numerous bacteriological researches have failed to reveal a pathognomonic organism.

THE MASTOID INFECTION THEORY

A more recent theory has, however, thrown suspicion on the mastoid antrum as the etiologic factor.

A study of the extensive literature on the subject shows that a number of facts have been observed, a number of assertions made, and certain deductions drawn regarding the connection of mastoid antrum

---

* From the Laryngological Service, Hospital for Sick Children.

* Read before the American Otological Society, Swampscott, Mass., May 20, 1930.

* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of a bibliography. The complete article appears in the author's reprints.

1. Coates, G. M.: Mastoid Infection in the Infant, Ann. Otol., Rhin. & Laryng. 36: 913 (Dec.) 1927.

infection and the disease. The argument has been developed much as follows:

1. At autopsy on infants dying from acute intestinal intoxication:
   (*a*) No evidence of gastro-enteritis has been discovered.
   (*b*) Accumulations have been found in the ear cavities,
   (*c*) Cultures from these accumulations have yielded organisms.
2. During the course of the disease:
   (*d*) Otitis media has been observed.
   (*e*) If not observed, the presence of infection has been established by incision of the ear drums,
   (*f*) or, if necessary, by antrotomy.
   (*g*) Mastoiditis, obvious or latent, could be inferred.
   (*h*) A simple mastoidectomy or antrotomy would demonstrate the presence of antrum infection, and afford the patient much greater opportunity of recovery.
3. Hence it has been argued that the infection found in the mastoid antrum:
   (*i*) was the cause of vomiting, diarrhea and drowsiness,
   (*j*) was the cause of the acute intestinal intoxication.

Each of these points has been carefully considered in our observations.

METHODS OF INVESTIGATION

An outline of the method of investigation used will now be given, but to avoid repetition it is necessary to make a few preliminary remarks.

The term "infant" is used to designate a child 24 months of age or less.

The facts and figures used are drawn from an elaborate study of all pertinent records for five consecutive years, from 1925 to 1929 inclusive, at the Hospital for Sick Children, Toronto.

The statistics and conclusions have the consideration and approval of the physician-in-chief, and his research department and the pathologist and his department.

The relationship of infection of the paranasal sinuses is not considered in this report.

In the earlier years, aspects of the subject were studied from time to time with the object of proving certain preconceived ideas regarding it. At the outset there appeared to be adequate support for the contention that cloudy material in the mastoid antrum was the etiologic factor in this disease. The conclusion did not meet with the unanimous approval of the staff of this hospital, on the ground that the work was done on too small or too specialized groups of patients.

Realizing the defects of the previous work and the many-sidedness of the subject, eighteen months ago we planned a comprehensive "investigation of infants suffering from this disease, which investigation has been in progress since that time." Certain workers were allotted to the observation of particular parts of the investigation. The clinical and chemical observations were undertaken by the physician-in-chief and two of his clinicians. An experienced bacteriologist undertook the bacteriologic examination of the blood, stools, urine and upper respiratory tract as well as the serologic tests. Three other members of the research department studied the blood volume, the capillary blood flow and the sugar tolerance. The department of pathology gave the autopsies special consideration. The attempt was made and still is being made to study every aspect of the disease without bias.

During the period when acute intestinal intoxication was epidemic, every infant exhibiting on admission the three cardinal signs and symptoms of vomiting, diarrhea and drowsiness was at once examined by a constant group of observers. The observations and the conclusions of all were dictated on the spot to a stenographer. The ears, nose and throat were minutely examined. The nasopharyngoscope was invariably used. Swabs for culture were taken from the nose, nasopharynx, ears and throat with rigid regard to care against contamination. Repeated examinations at later dates were similarly made. If the patient succumbed, an earnest attempt was made to secure an autopsy, and if that was successful great care was taken in the observations on the temporal bone.

FACTS REVEALED BY ROUTINE AUTOPSIES

Material Available for This Investigation.—Study of the autopsies in the earlier years of the investigation revealed the fact that the head had been examined in a disappointingly small percentage of instances. From the commencement, therefore, of the comprehensive investigation, effort has been made to get permission for the examination of the head at postmortem.

Table 1 shows the number of patients handled in our infant ward in the past five years, the number of deaths, the number of autopsies and the number of instances in which the head was examined.

The Infant Antrum at Autopsy.—The conception that suppuration of the ear was the essential factor in the infant mortality of this disease had its origin in the observation that at autopsy accumulations of pus or cloudy fluid were found in the mastoid antrums. Other observers had suggested that this material would be found in all mastoid antrums a few hours after death; suggesting, therefore, that the accumulations were a postmortem change.

TABLE 1.—*Autopsies on Infants 24 Months of Age and Under*

Year	Total Number of Admissions to Infant Ward	Total Deaths	Total Autopsies (Excluding Those Dying in the First Few Days of Life)	Total Number in Which the Heads Were Examined
1925	1,223	333	110	27
1926	1,217	367	84	39
1927	1,254	328	111	68
1928	1,247	365	136	100
1929	1,429	431	177	90
Total for five years...	6,370	1,814	618	324

It was, therefore, necessary to discover evidence regarding this point. To do this, the autopsies of all patients 24 months of age and under for the past five years have been examined. Out of 324 autopsies on the head, 199 showed both mastoids healthy, 49 showed one mastoid with fluid in it and 75 showed material in both mastoids (table 2).

The relationship of these figures to the number of hours after death that the autopsy was performed was also studied. Of the cadavers showing healthy mastoids 114 were examined from one to ten hours after death, 50 from eleven to fifteen hours after death, 21 from sixteen to twenty hours after death, and 14 twenty or more hours after death.

This conclusively proves that the mastoid antrums of infants are as a rule healthy and that with due care they may remain so for many hours after death. It can therefore be inferred that accumulations or infections found in the mastoid antrums of infants at autopsy, provided the cadaver was at once put in cold storage, are ante mortem in origin.

FACTS REVEALED FROM CLINICAL INVESTIGATION

Analyses of the records of patients suffering from acute intestinal intoxication in the first three years are

not given because there were so many errors and omissions that the members of the staff have not been able to agree on the conclusions, but, as previously stated, in 1928 and in 1929 two long series of cases were studied so carefully that there is unanimity regarding the figures quoted.

Gross Observations at Autopsy.—Series of 1928: In 1928 eighty-three infants were critically studied, and forty-one cases were finally classified as acute intestinal intoxication. Twenty of the forty-one patients died. Autopsies on the head were performed on five (table 3).

In all of them evidence of an intestinal infection was found. In two, slight evidence of pathologic change was found in the antrum or its immediate periphery only; there was no involvement of the greater part of the mastoid; pure cultures of hemolytic streptococcus and *B. hoffmanni* were obtained. In three there was no mastoid infection.

Therefore the autopsies on this series show that mastoid infection was not the primary cause of the intoxication.

Series of 1929: In 1929, 158 infants were critically studied; 127 cases were finally classified as acute intestinal intoxication. Fifty-six of the latter patients died. Autopsies on the head were performed on fifteen.

In all of them evidence of an intestinal infection was found.

Of the six cadavers showing mastoid involvement, two showed minute change in one mastoid only, and four had considerable purulent material in both mastoid antrums. In nine of these there was no mastoid infection.

Therefore the autopsies on this series show that mastoid infection was not the primary cause of the intoxication.

Bacteriology.—The incidence of hemolytic streptococci in the upper respiratory tract of the two series showed considerable similarity in spite of the inequality in number.

The control series of 1929 showed a higher percentage of hemolytic streptococcus changes in throats than the series of 1928. This was rather surprising, since some control studies were conducted during the colder weather in that series whereas the series of 1929 was studied entirely in the warmer months of the year (table 4).

The presence of streptococci in the nose and throat then has little significance, since it has not the seasonal incidence to correspond with that of acute intestinal intoxication. Moreover, the presence of hemolytic streptococci in both case and control studies further weakens the possibility of their etiologic significance. Again, upper respiratory infections, if of causative importance, should be produced by a uniform flora; this was not the case.

In only five of the 1928 series was the organism picked up from the nose or throat the same as that picked up from the ear. In all other cases there was no correspondence between the organisms grown from swabs from the nose and throat and those from the ear.

TABLE 2.—*Conditions Found in the Mastoids of Infants at Autopsy*

		Age Incidence				Relation of Age to Condition of Mastoid: One to Six Months			Seven to Twelve Months			Thirteen to Twenty-Four Months			Relation of Hours After Death That Autopsy Was Performed to State of Mastoid: One to Ten Hours			Eleven to Fifteen Hours			Sixteen to Twenty Hours			Twenty Hours and On				Condition of Mastoids			
Year	Number of Autopsies on Head	One to Six Months	Seven to Twelve Months	Thirteen to Twenty-Four Months	Unknown	Both Healthy	Fluid in One Mastoid	Fluid in Two Mastoids	Both Healthy	Fluid in One Mastoid	Fluid in Two Mastoids	Both Healthy	Fluid in One Mastoid	Fluid in Two Mastoids	Unknown	Both Healthy	Fluid in One Mastoid	Fluid in Two Mastoids	Both Healthy	Fluid in One Mastoid	Fluid in Two Mastoids	Both Healthy	Fluid in One Mastoid	Fluid in Two Mastoids	Both Healthy	Fluid in One Mastoid	Fluid in Two Mastoids	Unknown	Both Healthy	Fluid in One Mastoid	Fluid in Two Mastoids	Unknown
1925	27	12	9	6	..	12	..	..	9	..	..	5	1	..	..	12	..	..	7	..	..	5	1	..	2	..	..	..	26	1	..	..
1926	39	20	12	7	..	16	2	2	11	..	1	6	..	1	..	17	2	1	7	..	2	5	..	..	4	..	1	..	33	2	4	..
1927	68	40	20	8	..	20	9	11	15	2	3	3	4	1	..	29	8	11	4	4	2	4	3	1	1	..	1	..	38	15	15	..
1928	100	61	18	20	1	26	11	24	9	3	6	9	1	10	1	28	6	25	12	4	7	3	5	6	1	1	2	..	44	16	40	..
1929	90	53	17	20	..	35	9	8	8	6	3	16	..	5	1	28	8	12	20	5	2	4	2	1	6	..	1	1	58	15	16	1
Total	324	186	76	61	1	109	31	45	52	11	13	39	6	17	2	114	24	49	50	13	13	21	11	8	14	1	5	1	199	49	75	1

TABLE 3.—*Comparison and Totalization of Series of 1928 with Series of 1929*

		Condition: Well Nourished	Condition: Poorly Nourished	First Symptoms: Cold	First Symptoms: Vomiting	First Symptoms: Diarrhea	On Admission: Fever	On Admission: Toxic	On Admission: Nose Clean	On Admission: Nose Discharging	On Admission: Ears Normal	On Admission: One or Both Ears Discharging	While in Hospital: Nose Infected	While in Hospital: Throat Infected	While in Hospital: One or Both Ears Infected	While in Hospital: One or Both Mastoids Infected	While in Hospital: Glands Swollen	While in Hospital: Vomiting	While in Hospital: Diarrhea	Result: Recovery	Result: Fatal	Result: Autopsy	Autopsy Observations: Head Examined	Autopsy Observations: One or Both Ears Infected	Autopsy Observations: One or Both Mastoids Infected
	Number																								
Acute Intestinal Intoxication																									
1928	41	22	19	10	3+5	27	39	39	26	15	16	25	16	30	24	1	3	29	39	21	20	5	5	2	2
1929	127	95	32	12	108	122	79	89	111	16	95	33	22	89	71	1	1	76	121	71	56	18	15	9	6
Total	168	117	51	22	111 & 5	149	118	128	137	31	111	58	38	119	105	2	4	105	160	92	76	23	20	11	8
Controls																									
1928	42	27	15	16	9	12	28	26	28	14	20	21	17	32	33	7	7	29	39	24	18	6	4	3	3
1929	31	21	10	7	11	8	12	3	22	7	23	7	8	17	14	..	2	10	23	23	8	2	2	1	1
Total	73	48	25	23	20	20	40	29	50	21	43	28	25	49	47	7	9	39	62	47	26	8	6	4	4

Cultures were also made from the stools; in only two of these was an organism picked up from the nose, throat or ear the same as the organism picked up from the intestine. There was, therefore, no correspondence between the bacteriology of the infection in the upper respiratory tract and that in the intestinal tract.

Each available serum was tested for its agglutination power against organisms of possible pathogenic significance found in the stool. In the series of 1928, the blood showed positive agglutination power in nine infants against an organism found in the stool. In twenty-three cases, agglutinins were demonstrated for one of the allied group of intestinal organisms. There was, therefore, surprising evidence of reaction on the part of the blood stream to the infection found in the intestinal tract.

While the serologic work on the series of 1929 is not completed, the evidence that the infection is primarily intestinal seems to have even firmer basis.

TABLE 4.—*Incidence of Hemolytic Streptococci*

	Series of 1928			Series of 1929		
Acute Intestinal Intoxication						
Number of ear examinations	13	..	....	18	...	....
Number of ear examinations that yielded hemolytic streptococci	..	8	....	...	9	....
Per cent positive	..	..	61.5	...	...	50.0
Number of nasopharyngeal examinations	19	..	....	119	...	....
Number of nasopharyngeal examinations that yielded hemolytic streptococci	..	11	....	...	46	....
Per cent positive	..	..	57.9	...	...	41.0
Number of throat examinations	35	..	....	116	...	....
Number of throat examinations that yielded hemolytic streptococci	..	24	....	...	76	....
Per cent positive	..	..	68.5	...	...	65.5
Total examinations	67			253		
Total positive		43			131	
Controls						
Number of ear examinations	8	..	....	2	...	....
Number of ear examinations that yielded hemolytic streptococci	..	4	....	...	0	....
Per cent positive	..	..	50.0	...	...	0
Number of nasopharyngeal examinations	9	..	....	29	...	....
Number of nasopharyngeal examinations that yielded hemolytic streptococci	..	3	....	...	11	....
Per cent positive	..	..	33⅓	...	...	37.9
Number of throat examinations	24	..	....	31	...	....
Number of throat examinations that yielded hemolytic streptococci	..	16	....	...	26	....
Per cent positive	..	..	66.6	...	...	83.9
Total examinations	41	..	....	62	...	....
Total positive	..	23	....	...	37	....

About one third of the serums have given marked agglutination with *B. dysenteriae* Sonne, while other serums have yielded suggestive results with other bacterial species.

The Type of Infant Exhibiting Acute Intestinal Intoxication.—The reader is referred to a paragraph on this point by Dr. Brown,[2] already quoted. A combined table shows that 117 infants were described as well nourished and 51 as poorly nourished.

First Symptoms.—For a considerable period the medical officer admitting to the infant ward has had a routine series of questions regarding the patient's history to which he must obtain a reply at the time of the admission. One of these reads, "Did the present illness start with a cold?" Our tables show a "cold" as the initial symptom in only 22 out of a total of 168 cases. Indeed, it is remarkable that a large proportion of these histories read, "Did not have a cold before the illness began and no member of the family had a cold."

Condition on Admission.—The majority of the patients were toxic at the time of admission. Attention is drawn to the remarkable number in whom no signs of nasopharyngeal or aural infection could be noted. It constitutes an argument in favor of the conception that upper respiratory infection is not the essential cause of acute intestinal intoxication.

That certain other infants—a very small number—developed typical acute intestinal intoxication signs and symptoms in the hospital with coincident upper respiratory infection in no way detracts from the foregoing deduction.

Attention is also drawn to the exceedingly small number of infants in this series who exhibited enlargement of the cervical glands.

Ear Drums Normal Throughout Illness.—The most striking clinical observation is the frequency with which an infant is admitted in an extreme state of acute intestinal intoxication without any evidence of infection in its ears, nose or throat. Table 3 shows that out of 168 admissions, 111 had no demonstrable ear, nose or throat infection. It shows that 63 had no ear infection and 130 had no nasal infection during the course of their stay in the hospital. It also shows that of the 20 infants who came to autopsy, 9 had no infection in either ear and 12 had no infection in either mastoid. Two infants developed clinical mastoiditis during their stay in the hospital. It is therefore reasonable to assume that ear or mastoid infection could not be the cause of the acute intestinal intoxication.

Ear Drums Normal Until Just Before Death.—Reference has been made to the fact that in a considerable percentage of the 168 cases of acute intestinal intoxication in 1928 and 1929 both ear drums were normal at the last recorded examinations, and that, in a number of patients who died, middle ear abnormality was not detected at autopsy.

In the accompanying tables, the remaining ears have been classified as infected. But this does not mean that all these were infected—it does mean that they all showed an observable change from the normal.

In making these observations it was remarkable how shortly before death the ear drums, which had up to then maintained their normal luster, would change to a grayish color with complete loss of luster, and a very slight fulness would appear in the posterosuperior quadrant, rarely obscuring at all any part of the malleus. The condition was usually the same in the two ears. Sometimes incision of this bulge resulted in the escape of a drop of cloudy material that occasionally produced an organism on culture. The colon bacillus was found in the ears of five infants of the series of 1928.

Even when the culture has been positive, I do not believe that the observed change postulates infection. There is absolutely no evidence in the tissues of reaction to infection. The tissue cells are dying; they are incapable of response. At the same time the eyes of the patient are glassy and sticky; the mouth is dry; the patient is dying. The peculiar appearance of the drum head is but a part of the general anhydremic picture.

Several times at autopsy the pathologist has described stomach contents in the nasopharynx and the same material in the eustachian tubes and middle ears and on one occasion he demonstrated bile in the middle ears. It may be remarked once more that this middle ear condition is, as a rule, bilateral.

I am therefore of the opinion that this change is an antemortem phenomenon due to the forcible ejection by sneezing, crying, coughing or vomiting of pharyngeal contents up eustachian tubes which have lost their resilience. When mastoid infection exists, it is the result and not the cause of the child's lowered condition.

2. Brown, Alan, et al.: Etiology of Acute Intestinal Intoxication of Infants, Preliminary Report, South. M. J. **23**: 107 (Feb.) 1930.

Otitis Media Developing During Illness.—It is exceedingly easy to produce abnormal appearances in an infant's ear drum by manipulation. It is essential, therefore, that, in the investigation of such a problem as this, the examination and care of the infant's ears should be in the hands of a careful otologist.

In spite of such care, it is widely admitted that an overwhelming majority of infants sick in an infant ward for any length of time develop otitis media in one or both ears. Middle ear infection is of frequent occurrence in infants, particularly in those with lowered resistance from acute or chronic disease.

In table 3 it is shown that in 105 (62 per cent) of 168 cases of acute intestinal intoxication one or both ears became infected while in the hospital; and that in 47 of the 73 control cases (64 per cent) one or both ears were infected. Therefore the incidence of otitis media was no greater in the acute intestinal intoxication group than in the remainder. The controls were not a great number. The exact incidence of otitis media is difficult to obtain in any really active children's hospital. A general statement may be made, however, that middle ear infection occurs in those patients who remain a long time in the hospital just as frequently as it does in those suffering from acute intestinal intoxication or perhaps more frequently.

Another observation acceptable to all is that ordinary infants with otitis media are irritable or slightly drowsy but not toxic.

I do not believe that chronic mastoiditis can exist in an infant without apparent evidence in the middle ear.

Observations from the Autopsies.—The statement has been made by several writers that in recent years all patients presenting the clinical picture of acute intestinal intoxication have mastoiditis, paranasal sinusitis or both as the underlying cause of their disturbance.

My experience (table 3) is quite different. One hundred and eleven patients presented the typical picture of severe acute intestinal intoxication without any demonstrable upper respiratory infection.

Mastoid Antrum Puncture for Diagnosis.—Following a suggestion that the mastoid antrum of the infant could be safely aspirated for diagnosis or latent infection, Dr. L. J. Dill and Dr. C. E. Snelling did the procedure according to the technic advised. They performed the operation only on cadavers and immediately prior to autopsy. Their conclusion from a series of sixty-six punctures is that the procedure is neither safe nor infallible.

Observations from Operation.—It has been stated that mastoid operation or antrotomy has been effectual in stopping the course of the disease. While this study was being pursued, thirteen patients were submitted to operation on both mastoids. These were all severely toxic and presented no clinical evidence of mastoiditis. The operations were distributed among the otolaryngologic staff. Every care was taken in the technic. A few operations were done under a general anesthetic, but the majority under a local anesthetic. The postoperative care was carried on by the operator. As a result of this painstaking work, I believe that, in spite of the fact that these patients were very poor operative risks, no child's death was in any way hastened by the operation.

Cloudy material was found in the antrums of nine of these thirteen infants. In some the mastoid wounds healed satisfactorily before death and in others the wounds were in the course of healing. Eventually, however, only one recovered. I believe that this constitutes considerable evidence in favor of the view that the mastoid infection was not the cause of the toxemia.

The united view of the staff of this hospital is that none of these mastoid antrums or mastoids showed the picture of reaction of the bone cells to infection which we are accustomed to see in acute mastoiditis. Pus we admit. Swelling and infiltration of the mucosa we admit. Also some cloudy material in a few small cells at the periphery of the antrum. But not typical mastoiditis. There was so little evidence of local trouble in our cases that we do not believe that such a small latent infection trapped in the antrum can be accountable for such profound general symptoms.

Operation is indicated if an infant has typical mastoiditis; but operation is not necessarily urgent, even in the presence of an acute streptococcic infection. The average infant suffering from acute intestinal intoxication is close to death, and operation is to be avoided if possible. Our medical staff has now seen so many sufferers from this disease with normal middle ears and mastoid antrums that it refuses to allow the mastoids of infants with acute intestinal intoxication to be operated on unless they exhibit true clinical mastoiditis.

Incidence of Intestinal Signs and Symptoms.—It has been held that an infection in the ear may be responsible for diarrhea, vomiting and loss of weight in infants. My impression is that it can cause a mild degree of these, but not the acute type that occurs in acute intestinal intoxication. As a check on this argument, the case histories of all the infants of 2 years of age and under who have had a mastoid operation performed have been studied to see whether diarrhea, vomiting or loss of weight occurred in them. In 133 consecutive cases, one or more of these symptoms was noted in only 18 patients. Vomiting without diarrhea or loss of weight occurred in 9. Diarrhea, but neither vomiting nor loss of weight was found in 1. Loss of weight without diarrhea or vomiting was found in 5. Diarrhea and vomiting occurred in 1. Diarrhea and loss of weight occurred in 1. Vomiting and loss of weight occurred in none. Diarrhea and vomiting and loss of weight occurred in 1.

It was surprising how frequently it was mentioned that the child was somewhat constipated. The vomiting was never severe, and it was generally noticed as a slight regurgitation following a spell of coughing. Our conclusion, therefore, from this control series is that mastoiditis, per se, in infants is rarely responsible for these symptoms.

SUMMARY

1. Many authors believe that infection in the mastoid antrum is the cause of acute intestinal intoxication in infants.

2. Our medical staff believes that the type of the disease seen in Toronto is the same as that which exists in other parts of Canada and the United States.

3. Study of the disease has been pursued seriously for five years. For the last two years a large body of workers have cooperated.

4. The onset of the disease is rarely characterized by a "cold."

5. The great majority of the infants were without any clinical evidence of an upper respiratory infection at the time they were toxic.

6. Many infants remained without any ear infection throughout the whole course of the illness.

7. Accumulations or infections found in the mastoid antrums of infants at autopsy are ante mortem in origin.

8. Both ear drums of many showed abnormality immediately preceding death. This change is an antemortem phenomenon due to forcible ejection up to the eustachian tubes. When mastoid infection exists, it is the result and not the cause of the child's lowered condition.

9. Mastoid antrum puncture for diagnosis of latent mastoiditis is not to be recommended.

10. Bilateral mastoid operation as a cure for the disease was a failure. Operation is to be postponed as long as possible.

11. The autopsies of the two intensively studied series of cases of acute intestinal intoxication show that mastoid infection was not common.

12. There was no correspondence between the bacteriology of the infection in the upper respiratory tract and that in the intestinal tract.

13. Evidence is being accumulated to show that the disease is of intestinal origin.

CONCLUSION

Infection of the mastoid antrum is not the cause of acute intestinal intoxication in infants.

SCURVY IN ADULTS

ESPECIALLY THE EFFECT OF FOOD RICH IN VITAMIN C ON BLOOD FORMATION *

STACY R. METTIER, M.D.,
GEORGE R. MINOT, M.D., S.D.,
AND
WILMOT C. TOWNSEND, M.D.
BOSTON

Scurvy in adults in large centers of population is infrequent but not rare. Outbreaks occurred among both the civil and the military population of certain countries [1] during the World War, but since 1920 only reports of a single case or small groups of cases appear in the literature.[2] Öhnell [2] and Shattuck [2] remark that the disease is perhaps more frequent than is supposed and that cases, especially in latent form, often are not recognized. Nine cases of scurvy in adults, eight of which were males, have recently come under our observation. The occurrence and certain precipitating factors of the disease, together with observations on the alleviation of the anemia of scurvy, comprise the subject matter of this paper.

OCCURRENCE OF SCURVY AND CERTAIN PRECIPITATING FACTORS

With the single exception of Öhnell,[2] who records the occurrence of scurvy in sixteen females out of the twenty-two cases he observed in Sweden, the other recent reports [3] concerning scurvy in adults deal largely with males over 50 years of age; men who live alone and whose subsistence depends on their own culinary inclinations. Meulengracht [2] defines the condition as "bachelor scurvy." This was essentially the state of affairs for seven of our eight male patients who were all over 50 years of age. The diets of our patients had been ones prepared largely from flours and often composed of food purchased at a store in a form ready to eat. These diets contained little or none of the foods rich in vitamin C; i. e., vegetables, fruits and certain animal tissues.

Poverty plays an important rôle in the choice of diet, although aversion to foods rich in vitamin C may be the reason given for an abnormal diet. Of rather rare occurrence is the development of scurvy from a prolonged strict diet provided for an organic disorder such as duodenal ulcer. Davidson [2] has reported such an instance. Our female patient developed scurvy seven years after being placed on a milk and cracker diet for gastric ulcer when 27 years old. She developed a psychosis and, although the symptoms associated with ulcer vanished, she continued to take a diet similar to the one originally prescribed. Another patient chose for over a year an ill balanced diet sparing in fruits and vegetables. He then took of his own volition, because of a tendency to diarrhea, a diet consisting of only boiled milk and white flour biscuits ("Uneedas"). The patient continued this regimen for about a month, when he developed acute bronchitis. As the bronchitis subsided, slight but definite signs of scurvy developed. They rapidly disappeared when he was given an appropriate antiscorbutic diet. A single instance is reported in the literature in which scurvy followed persistent vomiting in pregnancy.[4]

It is important to appreciate that ill health may be produced by the deficiency of a food factor in much smaller amounts than that necessary to create the typical syndrome associated with its lack, as has been so well discussed by McCollum.[5] It is recognized that conditions due to vitamin deficiencies and due to a lack of certain hormones are brought forth or intensified under various adverse conditions. Infectious processes, chronic fatigue and excesses of various sorts may precipitate a deficiency disorder when states of nutritional instability are present. Individuals with nutritional instability may have the appearance of health but usually lack a normal sense of well being. Infections undoubtedly can precipitate in such persons typical syndromes of a deficiency disorder and probably more often conditions that are not well recognized as being due to abnormal nutrition. An instance of scurvy being

---

* From the Thorndike Memorial Laboratory, Boston City Hospital, and the Department of Medicine and Tropical Medicine, Harvard University Medical School.

1. Harvier, P.: Epidemic of Scurvy, Paris méd. **20**: 394 (Nov. 10) 1917. Hess, A. F.: The Rôle of Antiscorbutics in Our Dietary, J. A. M. A. **71**: 941 (Sept. 21) 1918.

2. These include:
Hirschfeld, Isador: Three Cases of Scurvy in Adults, J. Am. Dent. A. **16**: 796 (May) 1929.
Esler, A. R.: Scurvy at Moyale, Kenya & East African M. J. **5**: 350 (Feb.) 1929.
Öhnell, Harald: Endemic, Manifest and Latent Scurvy, Acta med. Scandinav. **68**: 176, 1928.
Swanson, C. N.: Scurvy Complicating Vomiting of Pregnancy, J. A. M. A. **88**: 26 (Jan. 1) 1927.
Meulengracht, E.: Scurvy in Unmarried Men, Ugesk. f. læger **89**: 165 (March 3) 1927.
Salle, V.: Scurvy in Adults, Enzyklop. d. klin. Med., pp. 460-485, 1927.
Seckel, H.: Diagnosis of Sporadic Case of Scurvy, Deutsche med. Wchnschr. **53**: 790 (May 6) 1927.
Jones, D. R.: A Case of Scurvy, Lancet **1**: 232 (May 15) 1927.
Frecker, E. W.: A Case of Scurvy, M. J. Australia **1**: 274 (Feb. 19) 1927.
Roberts, L. J.: A Case of Scurvy, U. S. Nav. M. Bull. **25**: 126 (Jan.) 1927.
Hermans, E. H., and Horst, A. K.: Typical Case of Scurvy, Nederl. tijdschr. v. geneesk. **2**: 638 (Aug. 7) 1926.
Delamare, G., and Djémil, Said: Sporadic Scurvy, Bull. Acad. de méd. **94**: 1274 (Dec. 22) 1925.
Witherspoon, Jack: Adult Scurvy, J. Tennessee M. A. **17**: 271 (Dec.) 1924.
Norgate, R. H.: Three Cases of Scurvy, Lancet **2**: 511 (Sept. 8) 1923.
Madden, C.: Case of Scurvy, M. J. Australia **2**: 571 (Dec. 1) 1923.
Gottlieb, K.: A Case of Sporadic Scurvy, Wien. med. Wchnschr. **62**: 577, 1922.
McClelland, R. S.: A Case of Scurvy, Lancet **2**: 608 (Sept. 17) 1921.
Bullowa, J. G. M.: Self-Induced Avitaminosis, M. Clin. North America **10**: 959 (Jan.) 1927.
Shattuck, G. C.: Scurvy with Reference Especially to Adults, J. A. M. A. **90**: 1861 (June 9) 1928.
Carr, J. G.: Scurvy, M. Clin. North America **5**: 115 (July) 1921.
Davidson, P. B.: The Development of Deficiency Disease During Therapeutic Diets, J. A. M. A. **90**: 1014 (March 31) 1928.

3. Meulengracht, Norgate, McClelland, Bullowa, Shattuck and Carr (footnote 2).

4. Swanson (footnote 2).

5. McCollum, E. V., and Simmonds, Nina: The Newer Knowledge of Nutrition, ed. 2, New York, MacMillan Company, 1929.

brought forth by an infection has already been cited in the case of the patient who developed bronchitis. A similar reaction has been noted in the experimental scurvy of guinea-pigs.[6] Another clinical example is as follows: A man, aged 60, entered the hospital because of bronchopneumonia and a fractured rib resulting from a recent injury. He was somewhat overweight and did not have the appearance of chronic ill health. The day after admission there developed a large ecchymosis over the left flank extending to the region of the broken rib. At this time the ecchymosis was thought to be dependent on the recent injury. The following day, however, a similar large area of ecchymosis appeared in the right flank, and a few hemorrhagic lesions appeared on the gums and about the buccal mucous membrane. Similar lesions also developed on the lower part of the right leg. It was then learned that for years his diet had consisted chiefly of coffee, pastry, potato, and bread and butter, with only small amounts of meat or fish, and that he ate but rarely green vegetables or fruit. He was given about 400 cc. of orange juice daily, together with a diet composed chiefly of concentrated carbohydrate food of the variety containing little or no vitamin C, and within a week the lesions attributed to scurvy entirely disappeared. Cases of this sort, in which an infection brings forth a definite syndrome because of an inadequate supply of a dietary factor for a prolonged period of time, are unusual, but serve to emphasize the importance of a well balanced diet with optimal amounts of all food factors for the maintenance of health.

The presence of arteriosclerosis in individuals partaking of an ill balanced diet for a long time may perhaps favor the development of a deficiency disorder. There is some evidence at hand to suggest that pernicious anemia and pellagra patients with arteriosclerosis are apt to require greater amounts of effective substance to alleviate their deficiency than similar patients with normal blood vessels. It has been suggested [7] that arteriosclerosis may enhance the development of scurvy, particularly in elderly men partaking of suboptimal amounts of vitamin C, because it was noted to be a feature of many cases of scurvy in adults. Cardiovascular damage, chiefly arteriosclerotic in type, was present to a greater or lesser degree in all of our recent eight cases of scurvy in elderly males. Perhaps thickening of the blood vessels prevents the tissues from receiving nutritious elements as readily as when such a condition is absent.

It is, of course, difficult to diagnose cases of "latent" scurvy unless some infectious process or other circumstance occurs that precipitates the typical disease. It is suspected, however, that cases of scurvy in adults occur more frequently than is commonly recognized and will be detected if relatively minor symptoms, such as poor appetite and loss of energy, are looked for and the dietary history is carefuly evaluated.

THE ANEMIA OF SCURVY

A study of the literature shows that anemia of variable degree occurs in a large percentage of adults with scurvy. It also occurs in infantile scurvy and is of regular incidence in the experimental scurvy of guinea-pigs.[8] Scurvy in adults is apt to develop following a prolonged period of nutritional instability and thus manifest a chronic condition. Chronicity apparently favors the production of anemia. Our observations on the blood are in accord with those of numerous other physicians.[9] In a large group of cases of scurvy in adults one may expect to find about 35 per cent with red blood cell counts between 2 and 3 million per cubic millimeter, a similar number with between 3 and 4 million red blood cells per cubic millimeter, and the remainder showing slight or no anemia with red blood cell counts above 4 million per cubic millimeter. The hemoglobin is reduced so that a color index of about 1 is the rule. Achromia of the red blood cells is not a feature, but slight central pallor of these cells is frequent. If hemorrhage has been an important factor in the production of the patient's anemia, a greater degree of achromia and a lower color index will occur. Abnormal variation in size is more pronounced than variation in shape. Occasionally there may be a sufficient number of nonachromic cells slightly larger than normal to suggest the possibility of pernicious anemia. About 1 per cent of the cells are usually polychromatophilic, and nucleated erythrocytes may appear in the peripheral blood. The blood platelets occur in from normal to moderately increased numbers. The leukocytes in uncomplicated cases are usually between 4,000 and 6,000 per cubic millimeter. A slight lymphocytosis with about 3 per cent atypical lymphoid cells frequently occurs. Monocytes are not increased. A few myelocytes are often to be observed. Polymorphonuclear eosinophils are not absent but basophils are seldom present.

It is well known that an antiscorbutic diet causes the anemia to lessen and to do so frequently with amazing rapidity, but there appears from the literature to be some confusion as to the exact reason for anemia in scurvy. Undernutrition and intercurrent infection have been held to be,[10] and undoubtedly are, contributing factors. Loss of blood, especially from the intestinal tract, has been considered by some individuals as the most important cause for the anemia. However, since anemia occurs without evidence of hemorrhage of large amount, some other factor would seem to be fundamental. The observations given farther on lend support to the idea that the anemia may be due to insufficient red blood cell production, as Hojer [8] and others have suggested. Our observations furthermore suggest that the inadequate function of the bone marrow may be directly dependent on a chronic lack of vitamin C, although in any given case some other factor or factors may intensify the process.

OBSERVATIONS ON THE RESPONSE OF THE RETICULOCYTES AND TOTAL RED BLOOD CELLS

Foods rich in vitamin C can rapidly effect erythropoiesis in scurvy for we have observed five cases in which a definite rapid increase of the reticulocytes occurred as a response to a diet rich in this vitamin. Data relative to the first patient, recorded in figure 1, show that the reticulocytes began to increase on the third day after he partook of a diet that was chiefly composed of fruit and green vegetables and that contained no animal food except boiled milk. They reached the peak

6. Nassau, E., and Scherzer, M.: Scurvy and Infection, Klin. Wchnschr. **3**: 314 (Feb. 19) 1924.

7. Minot, G. R.: Some Fundamental Clinical Aspects of Deficiencies, Ann. Int. Med. **3**: 216 (Sept.) 1929.

8. Meyer, A. W., and McCormick, L. M.: Studies on Scurvy, Stanford University Publications **2**: 199 (number 2) 1928. Liotta, D.: Experimental Scurvy: III. Modification of the Cell Elements of the Blood, Arch. di farmacol. sper. **36**: 76, 1923. Hojer, J. A.: Studies in Scurvy, in Almquist and Wiksell's Boktryckeri, Uppsala, 1924.

9. Meulengracht (footnote 2). Shattuck (footnote 2). Leitner, P.: Beiträge zur Haematologie und Klinik des Skorbuts, Wien. Klin. Wchnschr. **31**: 978, 1917. Eichorst, E. L. H.: Trattato di Patologie eterapia Speciale Medica (Milano. Soc. Ed.) **4**: 73, 1913-1914. Hess, A. F., and Fish, Mildred: The Blood, the Blood Vessels and the Diet, Am. J. Dis. Child. **8**: 385 (Dec.) 1914.

10. Hansmann, T.: Das Blutbild bei Skorbut, Ztschr. f. klin. Med. **93**: 346, 1922. Keefer, C. S., and Yang, C. S.: The Rôle of the Various Vitamins in the Production of Anemia, Nat. M. J. China **15**: 419 (Aug.) 1929.

of their rise on the eighth day and returned to normal by the fifteenth day. The response of this patient's reticulocytes was entirely similar to that observed in a second patient treated in a similar manner and in three other patients treated as described later on. Figure 2 shows the response in one of these other patients. The reticulocytes in all instances began to increase on the third or fourth day and then reached the peak of their rise on from the fifth to the eighth day. The height of

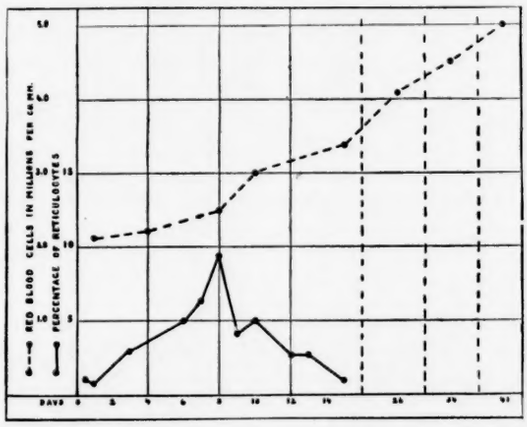


Fig. 1.—Response of the reticulocytes to a diet rich in fruit and green vegetables, without liver or iron, in a case of scurvy in a man.

their rise probably depends in some measure on the amount of potent material fed, the degree of anemia and the precise state of the patient. This state of affairs is comparable to what occurs with the administration of potent substances in pernicious anemia.[11] The response of the reticulocytes was coincident with cessation of hemorrhage in the scurvy patients. There was associated with this reaction of the bone marrow an increase of the red blood cells which usually continued rapidly to a normal level concomitant with a pronounced improvement in the health of the patient.

Certain anemias, appropriately called dietary anemias because they are associated with the patient partaking of an inadequate diet for a prolonged period of time, chronic chlorosis, and anemias of ill defined origin particularly occurring in women and often associated with gastric anacidity, as well as some other anemias, such as those due to chronic blood loss, lessen rapidly following the administration of large doses of iron. Therefore, it was thought that the anemia of scurvy might be alleviated by suitable iron therapy, and, like patients with anemia benefited by iron, might show a prompt response of reticulocytes to this element. Accordingly, two elderly male patients with typical scurvy were treated as follows:

They were given daily a diet deficient in vitamin C, composed of boiled milk and white flour biscuits. During six days there was no change in their reticulocytes. Then for six days in one case and for seven days in the other, 6 Gm. of iron and ammonium citrate (U. S. P.) were added to the diet. When the iron was omitted the same diet was continued but with the addition each day of 575 cc. of orange juice.

The results that occurred in the first patient given this treatment are recorded in figure 2. There was no significant quantitative change in the circulating reticulocytes within eight days following the commencement of iron therapy. However, after the patient had enjoyed the fruit juice for three days the reticulocytes began to increase from a stationary level of about 2.5 per cent. They reached a level as high as 9.7 and 9.9 per cent on the fourth and fifth day, respectively, and then rapidly fell to a low level during the following three days. During the twelve days that the patient took food lacking in vitamin C there was a drop in the hemoglobin from 73 to 55 per cent, and the red blood cells fell from 3.8 to 2.5 million per cubic millimeter. Striking, rapid improvement, however, occurred soon after the administration of orange juice, so that in twenty-four days after the patient first received this fruit juice the red blood cells were 4 million per cubic millimeter and the hemoglobin was 90 per cent.

The results obtained in the second case were similar. However, the anemia increased very little during the thirteen days that food lacking in vitamin C was taken by the patient. The reticulocytes increased from a stationary level of about 1 per cent, maintained for six days before and ten days after the commencement of iron therapy, to 3 per cent on the third day that orange juice was given. Their rise persisted so that there were between 4 and 5 per cent on the sixth, seventh and eighth days, followed by a return to a low level on the twelfth day. There was slow but progressive decrease of the anemia, and after forty-one days of an antiscorbutic diet the patient's hemoglobin had increased from 55 to 83 per cent and the red blood cells from 2.1 to 3.8 million per cubic millimeter. The relatively slight response of this patient's reticulocytes, especially in view of the relatively low level of his red blood cells and the continued retarded production of blood that followed, can be attributed to the fact that the patient suffered from cystitis, hypertension, arteriosclerosis and a mild degree of lead intoxication. Infections and poisons are known to inhibit the response of the bone marrow to substances potent for a given type of anemia. The four other patients whose reticulocytes were observed to respond to food rich in vitamin C had no complication except moderate arteriosclerosis. There was a rapid but tem-

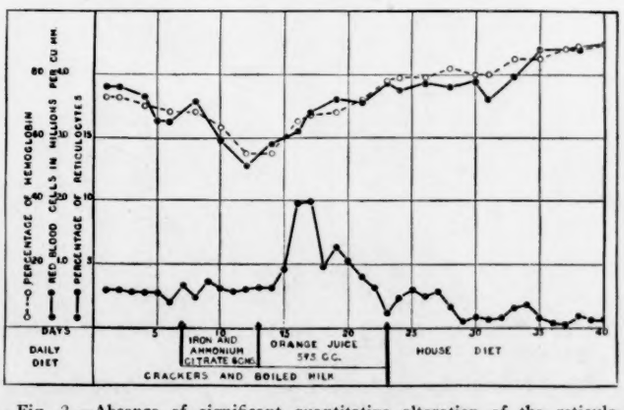


Fig. 2.—Absence of significant quantitative alteration of the reticulocytes to large doses of iron, but a distinct prompt response following the administration of orange juice, in a case of scurvy in a man.

porary increase of reticulocytes in these four patients with a quick regeneration of hemoglobin and red blood cells. Apparently a maximal production of reticulocytes occurred because they increased to the same approximate numbers as are found at comparable red blood cell levels in pernicious anemia following the administration of optimal amounts of effective material.

There are several reasons why one may attribute the reticulocyte response in the two patients given iron and later food rich in vitamin C to material contained in the

11. Minot, G. R.; Murphy, W. P., and Stetson, R. P.: The Response of the Reticulocytes to Liver Therapy, Am. J. M. Sc. **175**: 581 (May) 1928.

food rather than to a delayed reaction to iron. In the first place, observations on more than twenty-five patients in this clinic and studies by Schulten [12] and by Keefer and Yang [13] as well as by others indicate that when the red blood cells are below 3 million per cubic millimeter the response of the reticulocytes to even considerably smaller doses of iron than our patients received will commence within eight days and usually within five days after iron therapy is started. More than eight days had passed after iron had been given before the reticulocytes started to rise in either of the two scurvy cases. In the second place, if the response to iron is delayed, the reticulocytes do not reach the peak of their rise rapidly, as occurred in the first case. The relatively weak response in the second case sustained over a longer period of time was not a delayed response and is the type of response to be expected when suboptimal amounts of potent material act on the bone marrow or when the effect of optimal amounts are inhibited by infection or other complications. Furthermore, the

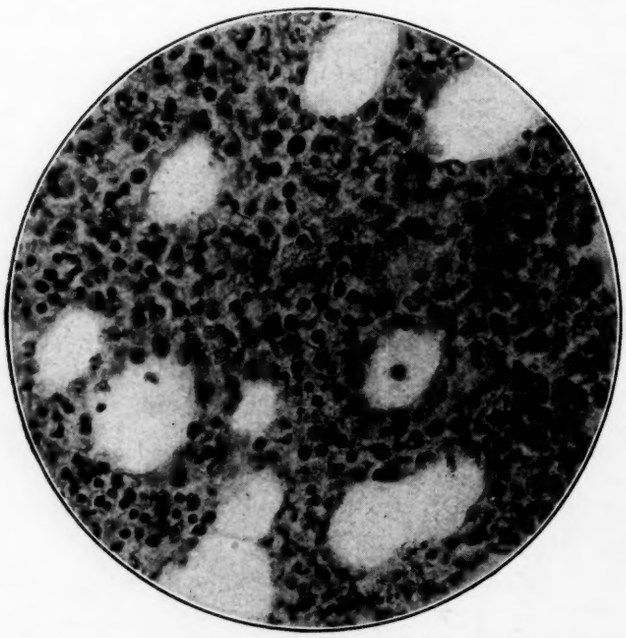


Fig. 3.—Appearance of bone marrow from an elderly man with scurvy; reduced from a photomicrograph with a magnification of 400 diameters. There are scattered foci of nucleated red blood cells and a moderate number of fat cells.

response of the reticulocytes in these two patients is entirely comparable to that in each of the other two scurvy cases in which the reticulocytes were observed daily and which responded to food rich in vitamin C and to that in one case to be referred to treated with liver pulp.

A liver extract potent for pernicious anemia was prepared in such a way that it could not contain vitamin C. This material was shown to be ineffective on the anemia of scurvy. Two patients, on a scurvy producing diet, with red blood cell counts of about 2 milion per cubic millimeter, showed no response of their reticulocytes and showed a slight decrease in the total number of red blood cells during ten days when they were each fed sufficient liver extract to cause a prompt response in pernicious anemia. The feeding of 240 Gm. a day of fresh raw liver pulp promptly produced a reticulocyte response with 8 per cent reticulocytes at the peak of their rise, and produced rapid regeneration of red blood cells in one of the cases, which is attributed to the fact that fresh liver is rich in vitamin C. The anemia of the other patient lessened rapidly when he took an ordinary well balanced diet containing plenty of vitamin C.

The observations recorded indicate that food rich in vitamin C can cause a prompt response of the reticulocytes and a rapid regeneration of blood in scurvy, and evidence favors the conception that neither large doses of iron nor the substance effective in pernicious anemia can do so. This information lends support to the idea that the fundamental cause of anemia in scurvy is the lack of vitamin C in the diet, although undoubtedly hemorrhage, infection, undernutrition and other factors may complicate the picture. It would appear, thus, as if vitamin C rather specifically affected the bone marrow of the patient with scurvy.

THE BONE MARROW IN SCURVY

There are only a few accounts in the literature of the state of the human scorbutic bone marrow. In their textbooks, MacCallum,[14] and Naegeli [15] described the bone marrow as having lost its blood-forming elements and as having become converted into an edematous fibrous tissue. Vedder,[16] on the other hand, states that the bone marrow is consistent with the type seen in secondary anemia from many causes. He writes that the fat disappears and that the marrow shows marked cellular hyperplasia.

Before treatment a specimen of sternal bone marrow was obtained by bone marrow puncture from the second patient given iron. A photomicrograph of this bone marrow is reproduced in figure 3. The tissue shows moderate cellular hyperplasia and contains a few isolated fat cells. There are scattered small varying-sized groups of nucleated red blood cells. Many myelocytes are present, among which are several of the eosinophilic variety. Adult polymorphonuclear leukocytes and megakaryocytes occur in moderate numbers. There is no evidence of fibrosis.

A specimen of sternal bone marrow was also removed at the peak of the reticulocyte response from the second patient, treated with only a diet rich in vitamin C. This specimen, pictured in figure 4, in contrast to the one shown in figure 3, shows quantitatively more nucleated red blood cells. Mitotic figures among the precursors of these cells were not apparent in the specimen (fig. 3) obtained from the patient prior to any treatment, whereas, in the specimen obtained at the time of the peak of the reticulocyte rise, a few mitotic figures appear in each field of the microscope.

Thus the bone marrow alterations depicted by these two specimens are characteristic of what is spoken of commonly as secondary anemia. No definite conclusions, of course, can be drawn as to the comparative histology of the bone marrow before and during treatment; but the character of the bone marrow suggests the possibility that when vitamin C has been chronically deficient its replenishment in the body can promote in some fashion the development of nucleated erythrocytes. In pernicious anemia, potent material apparently permits maturation of the megaloblasts in the bone marrow,

12. Schulten, Hans.: The Treatment of Hypochromatic Anemia with Large Doses of Reduced Iron, München. med. Wchnschr. **77**: 355 (Feb. 28) 1930.

13. Keefer, C. S., and Yang, C. S.: Anemia of Undernutrition; Report of Cases with Results of Treatment, Nat. M. J. China **15**: 701 (Dec.) 1929. Yang, C. S., and Keefer, C. S.: Liver and Iron in the Treatment of Secondary Anemia, Nat. M. J. China **15**: 721 (Dec.) 1929.

14. MacCallum, W. G.: A Textbook of Pathology, Philadelphia, W. B. Saunders Company, 1928, p. 927.

15. Naegeli, O.: Blutkrankheit and Blutdiagnostik, Berlin, Julius Springer, 1923, p. 364.

16. Vedder, E. B.: Scurvy, in Tice: Practice of Medicine, Hagerstown, Md., W. F. Prior Company, Inc. **9**: 172, 1929.

which leads to a reticulocyte response. In scurvy and in anemias responding to iron perhaps the effective substance hastens maturation of the normoblasts, which, under comparable conditions, permits a reticulocyte response that we have noted tends to occur somewhat more rapidly than in pernicious anemia. The increased rate could be accounted for by the fact that the normoblast is a less primitive cell than the megaloblast, so that the former could maturate sooner than the latter. At all events, the increased activity of the bone marrow in scurvy is clearly reflected in the peripheral blood by the reticulocyte response to food rich in vitamin C.

Knowledge has been advanced rapidly in recent years concerning the importance of food in alleviating anemia and the influence of inadequate diets and digestive processes in the causation of anemia. Known vitamins play no rôle in the regeneration of the blood in pernicious anemia, and at least are not required for regeneration of blood in many cases of secondary anemia. If, however, an anemia can be related to a vitamin

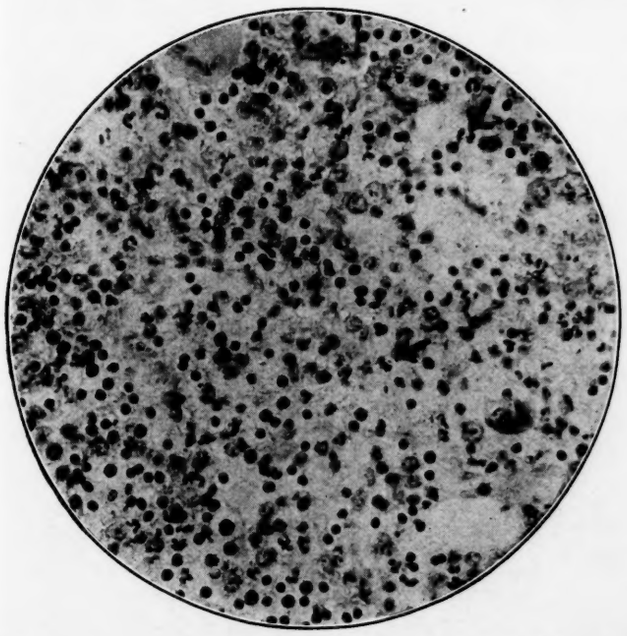


Fig. 4.—Appearance of bone marrow from an elderly man with scurvy at the peak of the reticulocyte response induced by orange juice; reduced from a photomicrograph with a magnification of 400 diameters. Note the large numbers of nucleated red blood cells. A few mitotic figures are present among the younger forms, some of which are indicated by arrows.

deficiency, it oftentimes will be decreased by the administration of material rich in the vitamin, the lack of which occurs in the given patient. Such appears to be the case in pellagra, in chronic vitamin A deficiency and in scurvy.

SUMMARY

Nine cases of scurvy in adults were studied. Eight occurred in elderly males.

Scurvy can be precipitated by infectious processes in individuals with certain types of chronic nutritional instability. Arteriosclerosis may favor the development of the disease.

In adults with scurvy, anemia is common and often pronounced. Fruit, green vegetables and fresh liver, foods which are rich in vitamin C, can cause in these patients a prompt response of reticulocytes and rapid regeneration of blood. Neither large doses of iron nor the substance potent in pernicious anemia appear to accomplish these effects.

The bone marrow in two cases of scurvy was examined microscopically. It appears to be of the type that occurs in what is often spoken of as secondary anemia.

Vitamin C apparently can have a specific effect on erythropoiesis when there has been a chronic lack of this vitamin.

PREGNANCY AND LABOR COMPLICATED BY GRANULOMA INGUINALE*

LESTER A. WILSON, M.D.
Professor of Obstetrics, Medical College of the State of South Carolina
CHARLESTON, S. C.

Granuloma inguinale is a disease found chiefly in the subtropics, but during the last ten years sporadic cases have been reported from many localities in this country, especially in the South. In Charleston, S. C., it is fairly common; the genito-urinary department of Roper Hospital informs me that it treats about twenty-five cases a year. Kenneth M. Lynch[1] of Charleston and Meredith F. Campbell[2] of New York are to be credited with the most comprehensive study of this condition that has been made in this country. The organisms that are supposed to be the cause of this disease were first described by Donovan in 1905 and are called Donovan bodies.

The method for demonstrating this organism is as follows: A portion of ulceration is selected where the ulceration appears to be spreading, not healing. Wet dressings of physiologic solution of sodium chloride are applied to this area for about twenty-four hours. The surface is then wiped thoroughly with sponges wet with salt solution, and with a dull curet or the edge of a glass micro-slide the surface is deeply scraped. This material is smeared out on several slides and allowed to dry thoroughly. Leishman's stain is applied to the smear, allowed to stand four minutes, then diluted with one half volume of distilled water and allowed to stand one minute. It is washed quickly with running water and dried with a blotter. The Donovan bodies are found scattered through the specimen but more particularly in the endothelial cells having a bluish bacillary or diplococcus appearance surrounded by a pinkish capsular zone.

The disease begins as a small moist papule, which rapidly ulcerates with progressive and eccentric invasion of the surrounding tissues by an elevated, reddish, often shiny, delicately skinned granulomatous proliferation, superficially ulcerating when moist, cracking when dry. Usually, however, the lesions are moist, and a thick mucoid exudation possessing a peculiar odor is characteristic. The disease shows no tendency to spontaneous healing. The genitals and perigenital tissues are most often involved. The disease apparently spreads by auto-inoculation and peripheral extension. Inoculation by transmission from clothing and friction is the probable explanation of its distribution. It is in no sense a venereal disease, as neither the husbands nor any member of the family of these patients give a history of having had granuloma inguinale. The occurrence of elephantiasis of the genitalia or at times of a leg signi-

---

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

1. Lynch, K. M.: Granuloma Inguinale, J. A. M. A. **77**: 925 (Sept. 17) 1921.

2. Campbell, M. F.: The Etiology of Granuloma Inguinale, Am. J. M. Sc. **174**: 670-679 (May) 1927.

fies an involvement of the lymph channel. These patients are singularly free from discomfort. An itching or at times a burning sensation plus the presence of the lesion and its accompanying foul discharge constitute the chief complaints. The lesions themselves are but mildly sensitive.

Effect of Granuloma Inguinale on Delivery, Puerperium and Subsequent Health of Mother and Child

Case	Race and Parity	Extent of Lesion and Wassermann Reaction	Delivery	Puerperium	Present Condition
1	Negro; primipara	Ulcerations of perineum and labia; Wassermann negative	Spontaneous; infant normal	Temperature 101 F. for seven days	Mother still under treatment; infant in good health
2	Negro; primipara	Extensive ulcers of perineum and left buttock; Wassermann ++++	Spontaneous; infant normal	Uneventful	Mother recovered; infant in good health
3	Negro; primipara	Ulcerations, symphysis to coccyx 5 in. wide over perineum; Wassermann negative	Spontaneous; infant normal	Temperature 103 F. for two days	Mother's ulcers improved; infant in good health
4	Negro; primipara	Ulcerations of the vulva; Wassermann negative	Premature, 8th month; spontaneous	Uneventful	Mother improved but not entirely recovered; infant died 2 days later
5	Negro; secundipara	Ulcers of the vulva; Wassermann ++++	Spontaneous; macerated fetus	Temperature 101 F. for six days	Mother not improved; claims she delivered a stillborn child 2 years before and had ulcers before that pregnancy
6	Negro; quintipara	Ulcers of the vulva; Wassermann negative	Spontaneous; infant normal	Uneventful	Mother recovered; infant in good health
7	Negro; primipara	Ulcers of the vulva; Wassermann negative	Spontaneous; infant normal	Uneventful	Mother recovered; infant in good health
8	Negro; primipara	Ulcers left side of vulva; Wassermann negative	Spontaneoue; infant in poor condition	Uneventful	Mother improving; infant died second day, cause undetermined
9	Negro; secundipara	Ulcers and old scar tissue both labia and perineum; Wassermann ++	Spontaneous; lateral episiotomy in old scar tissue; infant normal	Uneventful	Mother recovered; infant in good health
10	Negro; primipara	Ulcers of vulva and elephantiasis left labia, size of grapefruit; Wassermann negative	Not delivered	Mass removed	Patient referred to out patient department for further treatment
11	Negro; quadripara	Ulcers of vulva; Wassermann negative	Not delivered	.....	Left hospital against my advice, and am unable to find any further record of her
12	Negro; primipara	Ulcers of vulva; Wassermann negative	Craniotomy; macerated fetus	Pelvic infection, fifteen days' duration	Recovered
13	Negro; tertipara	Ulcers of vulva and perineum; Wassermann negative	Forceps; stillborn infant	Uneventful	Mother improved
14	Negro; quintipara	Ulcers of the vulva; Wassermann negative	Spontaneous; infant normal	Temperature 101 F. for seven days	Mother improving; infant in good health

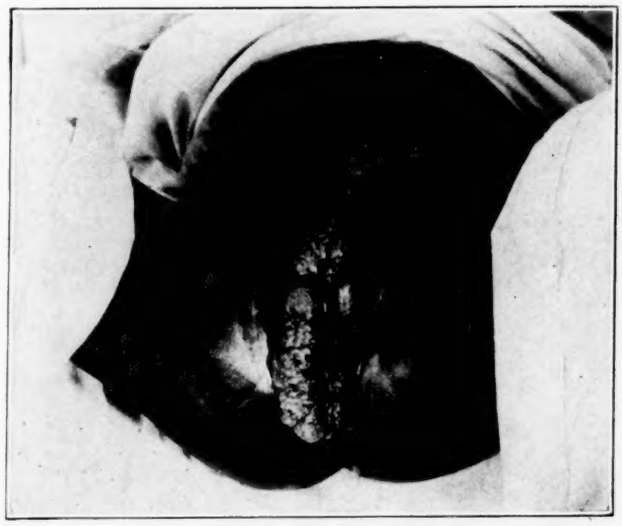
During the last five years I have seen fourteen cases of pregnancy and labor complicated by this condition These patients had typical ulcerations of the vulva or the entire vulvular region, from which exuded a foul, infected discharge that not only bathed the vulva but often extended over the lower part of the abdomen. Confronted with this situation complicating labor, I thought the safest method of delivery was by the natural route, not making either vaginal or rectal examinations. These patients when seen during pregnancy were given the usual treatment of 1 per cent solution of antimony and potassium tartrate intravenously, and local antiseptic dressings. During the puerperium they were kept in an exaggerated Fowler's position.

CONCLUSIONS

1. This series of cases is too small to form the basis for any definite conclusion. However, it seems that there is a tendency to stillbirth and death of infants in granuloma inguinale.

2. Granuloma inguinale is not of venereal transmission, as none of the husbands of these patients were diseased.

3. The Negro race is far more susceptible than the white race.



Appearance of lesions.

4. Under the influence of pregnancy the disease progresses rapidly, probably because of the congestion of the parts; after labor the condition tends to improve.

5. This series of cases shows that the uterus if not traumatized or infected by handling can take care of a great deal of infection.

105 Rutledge Avenue

ABSTRACT OF DISCUSSION

DR. JOHN P. GARDINER, Toledo, Ohio: Dr. Wilson is to be congratulated on his delivery of a series of fourteen patients having a skin infection such as this and yet having had no greater mortality rate. There was mortality among the children but I doubt whether that is any more than is to be expected under such conditions. As the Negro is migrating north, and as the incidence of this infection is greater in tropical or subtropical people, it behooves men in the North to watch carefully for this disease. In an examination of approximately 5,000 cases, I have never seen a case of granuloma inguinale. Nevertheless, I am on the watch for it. I doubt whether others in the North, and especially in the Middle West, have seen many cases. However, probably in a few years cases of granuloma inguinale will be reported. Granuloma is seen in the neighborhood of the pudenda in its most

common forms. This brings up the question of delivery and what to do in generalized cutaneous infection. I had the thrilling experience this spring of delivering one of my patients at the Toledo Contagious Hospital in the active pus stage of smallpox. The vulva was covered with pustules. Fortunately I had observed the patient during the prenatal period. There was no disproportion, so she was allowed to go into labor normally. The infant was vaccinated immediately, the vaccination took, and the mother and child are now doing well. The child did not have smallpox. In these cases of frank infection, as Dr. Wilson brought out, one of necessity refrains from making any vaginal or rectal examination. It taxes at times the ingenuity of the obstetrician to know what method to pursue in cases of frank cutaneous infection. My personal method, if I have not had the opportunity of making an examination except by external palpation, is to induce labor early, if there is any possibility of a disproportion. If there is no disproportion, the patient may be allowed to go into labor and the obstetrician trusts to the immunity of the individual.

DR. CAREY CULBERTSON, Chicago: This is a condition which is no longer an oriental disease but has appeared in North America. Most of our Negro patients in the Cook County Hospital in Chicago are from the Gulf states and we see more or less granuloma inguinale—one or more cases every year. The condition has been reported in Philadelphia by Dr. McGlinn. A word should be said regarding the differential diagnosis. There are four lesions creating ulceration of the vulva that are somewhat alike. One of them is tuberculosis, which is not seen often but is seen, particularly in the charitable institutions. Another is syphilis—syphilitic ulceration, broken down gumma, or syphiloma of the vulva; it looks like this erosive vulvitis. The third is carcinoma, probably the most frequent, and the other is granuloma inguinale. The treatment of these various conditions is absolutely different, and this is why the differential diagnosis is important. Syphilis is treated by neoarsphenamine. Tuberculosis may be surgical and it may not be. Granuloma inguinale is not a surgical lesion. One of the worst things is to attempt to extirpate it by operation. The result would be a breaking down and an enormous sloughing. It is treated by injections of a solution of antimony and potassium tartrate. It is very chronic and the cure is slow. Carcinoma is treated by surgery or radium. Occasionally, also, an elephantiasis vulvae will break down and become ulcerated. It is another condition that is seen only in colored women. It is best treated by surgery.

DR. W. E. TYSON, Detroit: I have used metaphen (the anhydride of 4, nitro-5-hydroxy-mercuri-ortho cresol) a great deal in the cure of chancroid. The ordinary chancroid, particularly on the cervix in the female, is a very difficult thing to treat. I have treated quite a number of them unsuccessfully with a local treatment, but I have used metaphen with great success. I have treated several patients who were pregnant. I do not say that there is any relation between the granuloma inguinale and the chancroid, but it just occurred to me whether the metaphen would have any curative effect in this condition as it does in the chancroid. It is most successful with the chancroid. They are much alike.

The Diagnostic Clinic at Its Worst.—At its worst, however, the Diagnostic Clinic is a machine, and the patient is automatically passed from one specialist to another and submitted to a series of examinations, so detailed in their nature that it would seem that nothing could be overlooked. The result is a list of so-called "diagnosis"—in reality a list of deviations from the normal, some of which may, and others of which certainly do not have any bearing on the patient's trouble. The unfortunate thing is that only too often the patient undergoes treatment for some of these unimportant conditions and at the same time, because of the lack of some one man who understands the situation as a whole, the real underlying difficulty is entirely overlooked.—Peabody, F. W.: Doctor and Patient, New York, Macmillan Company, 1930.

Clinical Notes, Suggestions and New Instruments

SUCCESSFUL REMOVAL OF A LARGE TERATOMA FROM A NEW-BORN INFANT

HAROLD A. ROSENBAUM, M.D., CHICAGO

Before the birth of the baby under discussion, the mother was thought by her obstetrician to be carrying a monster. Wisely the obstetrician did a cesarean operation and delivered a baby with a large mass attached to the right perineal and buttock region. This he diagnosed as a meningocele, and a consulting neurologist concurred in the diagnosis. The family was given a hopeless prognosis. When the baby was 18 days old Dr. Louis C. Johnston was called to see her and asked me to see her with him.

Appearance of teratoma.

We found a lusty, crying infant, uncomfortable probably because of the posture necessitated by the large mass mentioned. Her general condition seemed quite normal aside from this mass.

The mass extended entirely from the right side of the perineum and the region of the right buttock. There was so much tension on the anus that there was an almost continual emission of fecal matter. The mass measured 32 cm. in diameter. There was considerable fluid present, but on deep palpation firm bony or cartilaginous tissue could be felt posteriorly toward the coccyx. The skin covering was vascular and bluish.

The knee jerks and the achilles reflex on the right and left were normal, and the thighs, legs and feet were normal. The left buttock fold was normal.

The site and unilateral character of the mass, the normally inervated lower extremities, and the feeling of firm tissue present deep in the mass made us feel that we were not dealing with a meningocele but had to do with a teratoma, and that the baby should be operated on to remove the mass. To exclude

the possibility of a loop of intestine coming down into the mass through an imperfect pelvic floor, a series of roentgenograms were taken following a barium meal.

Dr. Johnston operated on the baby, removing the mass, which weighed 2 pounds (1 Kg.) and contained much yellowish fluid. The baby now weighed 7 pounds (3.2 Kg.). The firm tissue which had been felt was diagnosed teratoma on microscopic section. It is interesting to note that almost immediately following the operation the anus began to function normally.

The baby is now 7 months old. She sat alone at 6 months and is in general entirely normal.

4753 Broadway.

AN UNUSUAL CASE OF COMPRESSION MYELITIS WITH POSTERIOR LUXATION OF OCCIPUT *

J. CLARK MOLONEY, M.D., AND ALBERT S. CRAWFORD, M.D., DETROIT

We report a compression myelitis due to posterior luxation of the occiput. A review of the literature and of the various indexes failed to reveal a parallel case.

History.—A white ex-pugilist, aged 38, came to the clinic, Nov. 23, 1928, complaining of a swollen right knee. It proved to be a neurotrophic joint. A more careful neurologic history elicited the following: When 28 years of age, the patient, as a participant in a prize fight, was struck a terrific blow on the chin; it rendered him unconscious. When he regained his senses, the left side of the body was weak and clumsy and the right leg was numb. The disturbance righted itself in three or four days. He had been "knocked out" about twenty-five times in his career, but never with the same consequences. Ten years later and shortly after the first of the year, 1928, while intoxicated, he fell in a tiled bathroom, striking the back of the neck against the rim of the tub. When he regained consciousness, his left side was again quite useless and clumsy, and the right side numb and "prickly." In four or five days the acute symptoms disappeared. The neck remained stiff. Chiropractic treatments intensified the stiffness and seemed to bring out the original clumsiness on the left and the numbness on the right. Four months later a painless swelling developed in the right knee, and the left side became weaker, slightly spastic and awkward. The right leg could no longer differentiate heat and cold. It was also insensible to pain. Eleven months after the fall in the bathroom, a secondary infection in the swollen right knee brought him to our clinic for treatment.

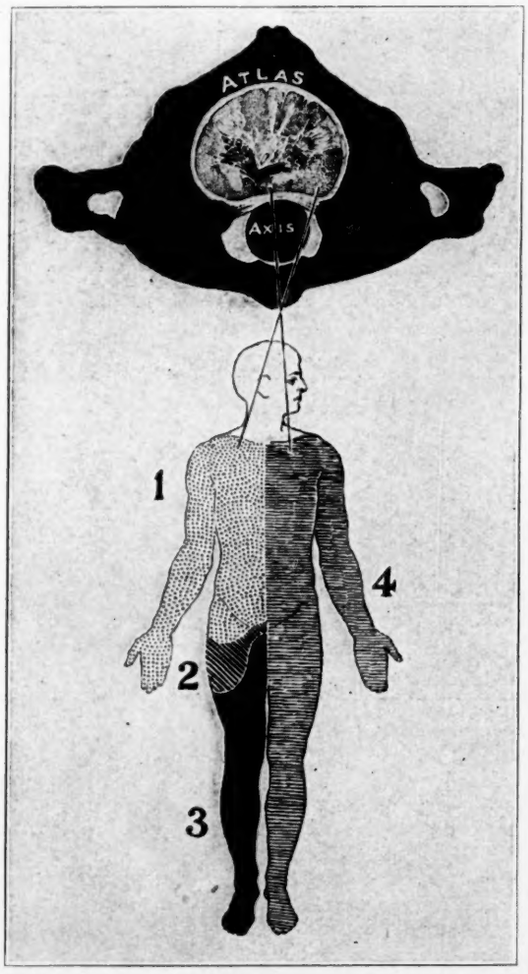


Fig. 1.—Distortion of left anterior aspect of cord, with resultant compression of spinothalamic and pyramidal tracts: 1, hypesthesia; 2, analgesia; 3, anesthesia to temperature; 4, muscular disturbances; weakness, spasticity, atrophy.

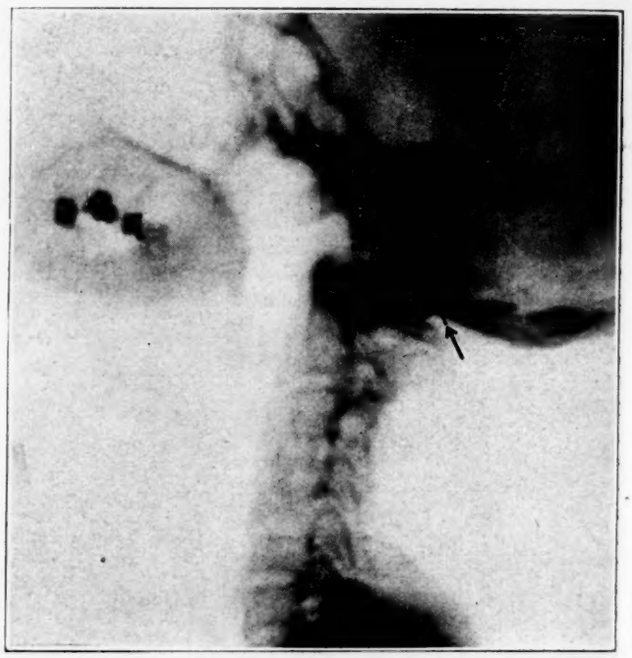


Fig. 2.—Arrow points to iodized oil.

TABLE 1.—*Measurements of Right and Left Sides*

	Right, Cm.	Left, Cm.
Mid forearm	27	24.5
Mid biceps	22.5	21
Mid calf	29	27

Examination.—On neurologic examination, there was slight but definite atrophy on the left side (table 1). This atrophy was best demonstrated by the Collins dynamometer; he gripped 125 on the right and from 85 to 90 on the left. The reflexes on the left were pathologically increased and were associated with a left ankle clonus, positive Babinski reflex and presence of the other pathologic toe signs. The left foot slapped the floor as he walked. Occasionally a shudder swept over his frame. On the right, pain sense was lost below the first lumbar segment and thermal sense below the twelfth dorsal segment. Between the right fourth cervical and first lumbar segment a hypesthesia existed. The Babinski reflex on the right was capricious. Tactile discrimination, vibratory sense and joint sense were present and equal on the two sides. The right knee was swollen and anesthetic (fig. 1). Laboratory tests, including Wassermann tests of the blood and spinal fluid, were negative.

Roentgenograms disclosed extensive traumatic arthritis with marked deformity of the mid and the upper cervical vertebrae, but were inconclusive as to cervical dislocation (fig. 2). Combined cisternal and lumbar puncture was done.

* Read before the Detroit Society of Neurology and Psychiatry, Jan. 9, 1930.

* From the division of neuropsychiatry and the division of neurosurgery, Henry Ford Hospital.

Xanthochromia and the syndrome of Froin were absent.

Treatment and Course.—Two cubic centimeters of iodized poppy-seed oil 35 per cent was left in the cistern, and roentgenograms were taken. Most of the iodized oil remained in the cistern (fig. 2). After this procedure, our patient disappeared from the clinic and was not seen again for six weeks. On his return, roentgenograms again revealed a major portion of the iodized oil locked in the cisterna magna.

We diagnosed an upper cervical dislocation or possibly an extradural hemorrhage that had organized. We concluded that either the one or the other was exerting pressure on the left upper anterior aspect of the cord. However, we were totally unprepared for what was subsequently revealed at operation.

One of us (A. S. C.) operated (fig. 3). A high cervical laminectomy was done, exposing the suboccipital region, down to the fifth cervical spine. The spines and laminae of the first four vertebrae were removed. The arch of the atlas was held locked anteriorly by the posterior margin of the foramen magnum. It was removed with great difficulty. When finally removed, the exposed dura was greatly thickened anterior to this arch (4 mm. thick), and when cut through spinal fluid and iodized oil gushed from above. The normal pulsations then began; they were absent before. There was a groove across the upper part of the cord corresponding to the arch of the atlas and the thickened dura. The cord worked backward as soon as

TABLE 2.—*Results of Punctures*

	Initial Pressure, Mm. of Mercury	Forced Expiration with Glottis Closed		
		Mm. of Mercury	Ascent	Descent
Cisternal puncture	12	23	Rapid	Rapid
Lumbar puncture	8	18	Slow	Slow

the dura was cut through, showing that it had been pressed forward before release. There were adhesions between the arachnoid and the cord and the dura in this region on both sides, which were broken up. A careful search revealed no other pathologic changes. The cord appeared of normal size and consistency. In closing, the upper part of the dura could not be opposed; the defect was covered with animal membranes, and the loose tissues over the area were brought together as well as possible for support. The patient was discharged from the hospital on the twenty-fourth day after operation.

At first the patient's symptoms and signs were exaggerated. Periodic violent clonic movements of the left leg set in soon after his discharge from the hospital. Change of posture brought about clonic tremors of the head. These disturbances abated when the patient's head and neck were supported by a celluloid collar. Gradually the muscles of the left side regained strength and he was soon able to grip 125 with the dynamometer on the left as well as on the right. The left ankle clonus disappeared. The Babinski capriciousness persisted but to a lessened degree. The arm reflexes became bilaterally equal. The leg reflexes, however, maintained a slight inequality, the left being the more prominent. The right-sided esthesial discrepancies became less and less apparent.

The patient was well on the road toward recovery. However, some five months following operation he went into an acute depression and committed suicide.

COMMENT

Our review of the literature was not enlightening. We unearthed many instances of unilateral dislocation at the same level. However, whether unilateral or bilateral, this type of dissolution of cervical alinement always presented itself between the first and the second cervical vertebrae. In fact, a review of the literature and the various indexes failed to reveal a single case in which the break in alinement manifested itself between the occiput and the first cervical vertebra, with the first and second cervical vertebrae maintaining their normal anatomic arrangement. In this respect, at least, our case is distinctive, for the break in continuity as demonstrated by operation occurred between the occiput and the atlas, the atlas epistropheus relation remaining unaltered. Undoubtedly, dislocation at this particular locale, i. e., between the occiput and the atlas, has happened many times, but, more than likely, always with fatal consequences to the patient. Such instances, presumably, would not find their way into medical literature.

SUMMARY

The sensory changes on the right, the motor changes on the left with bilaterally intact vibratory sensation, represented a definite symptom pattern (fig. 3). This symptom pattern connoted a lesion of the upper cervical cord in the left anterior quadrant. Two cubic centimeters of iodized poppy-seed oil 35 per cent remained in the cisterna for six weeks. Operation revealed a posterior luxation of the occiput on the atlas, or, in other words, an anterior dislocation of the entire spinal column on the occiput. It is reasonable to believe that the posterior arch of the atlas pushed the spinal cord forward, jamming its left anterior aspect against the dens of the epistropheus. The operation released the cord, allowing it to swing backward, removing the pressure from its anterior surface. For five months, barring a short interval directly following operation, the patient made progressive improvement. Then he committed suicide. Review of the literature failed to reveal another case of compression myelitis caused by the posterior dislocation of the occiput.

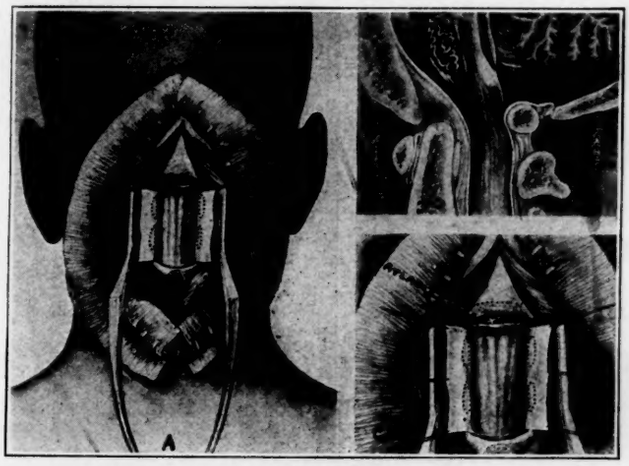


Fig. 3.—All three drawings show the atlas and thickened dura under the margin of the foramen magnum. *B* shows the distortion of the cord.

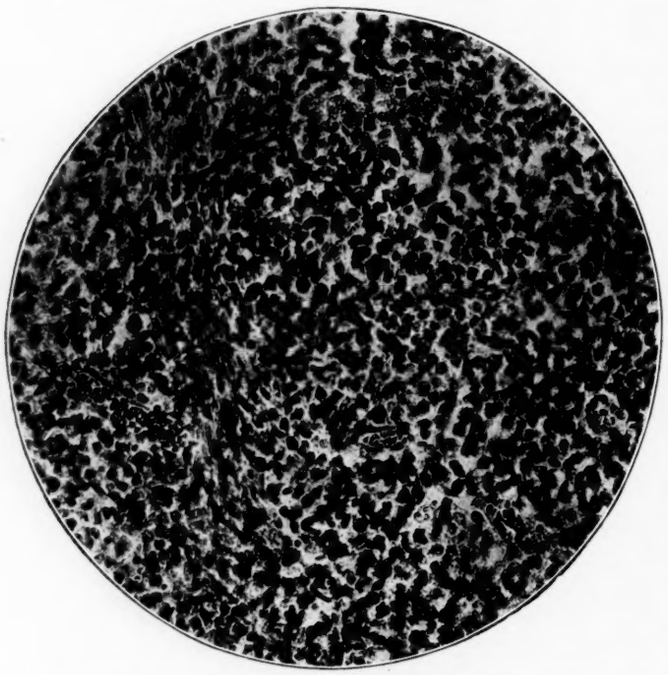
SARCOMA OF OVARY IN A CHILD EIGHT YEARS OLD

PHILIP JAISOHN, M.D., READING, PA.
Pathologist, St. Joseph's Hospital.

Sarcoma of the ovary among children under the age of 10 is quite rare. The available bibliography on the subject in the Surgeon General's Library shows only twenty-four cases between 1888 and 1915, including those reported from Austria, Cuba, France, Great Britain, Germany, Russia, Sweden and the United States. The rarity of the condition warrants my reporting a case that recently came to my observation in this hospital.

Virginia M., aged 8, was admitted to the hospital in the service of Dr. M. Z. Gearhart, Nov. 15, 1929, on the complaint of pain in the lower part of the abdomen and bleeding from the vagina. The physical examination showed that she was quite well nourished and of normal size for her age. There was a mass in the lower part of the left quadrant of the abdomen which was very tender on palpation, and there was some vaginal hemorrhage. This condition was first noticed by her mother about three weeks before her admission to the hospital. Up to that time she had been in excellent health. Since the development of the pain, she had become exceedingly nervous and was unable to rest during the night. The temperature was 101.5 F.; pulse, 120; respiration, 20; blood pressure, 116 systolic and 80 diastolic. The blood count showed 3,670,000 red cells and 9,850 white cells per cubic millimeter of blood, hemoglobin

68 per cent, polymorphonuclears 73 per cent, and small lymphocytes 27 per cent. The urine showed 3 + albumin, occult blood 3 +, and many vaginal epithelium cells but no casts. The roentgenologic observations showed a mass in the left side of the lower part of the abdomen suggesting pelvic origin and the displacement of the colon upward by the mass.



Mixed cell sarcoma of the ovary in a child, aged 8 years, stained with hematoxylin and eosin, slightly reduced from a photomicrograph with a magnification of 450 diameters.

Dr. Gearhart performed the operation of removing the tumor which was found in the left pelvic cavity, involving the ovary and the tube. The tumor was roundish and flat, resembling the shape of a turtle, 15 cm. in length, 8.1 cm. in width, and 6.2 cm. thick, weighing 5.6 Kg. A part of the tumor was necrosed and had undergone a cystic degeneration. The cystlike cavities contained serosanguineous fluid. But the greater portion was fairly firm and well supplied with blood vessels. No trace of the ovary or tube could be seen.

The surface of the tumor was smooth and had no definite capsule except the thin serous covering. On section the tumor tissue presented the white glistening texture which is usually found in the sarcoma of mesenchymal origin. Under the microscope the solid portion of the tumor showed several varieties of cells—round cells, spindle cells, large spheroidal cells and a few giant cells. The stroma was rather scanty and the lumen of the vessels were well crowded with the atypical cells. The accompanying photomicrograph of a section of the tumor well illustrates the major portion of the growth.

There was apparently no involvement of other pelvic organs, nor was there any indication of metastasis in the remote part. The child made a rapid recovery from the effect of the operation and was discharged in two weeks. Up to this writing, more than six months after the operation, she is in good health and has gained 10 pounds (4.5 Kg.) in body weight.

For the want of a better term, I called the tumor a mixed cell sarcoma, but as to its exact histogenesis I am uncertain. The ovarian stroma might have been the seat of its origin, or possibly it might have sprung from some aberrant cells of teratomatous nature. At any rate a guarded prognosis was given, although the postoperative condition of the patient is quite favorable so far.

BRONCHIOGENIC CARCINOMA WITH CEREBRAL METASTASIS IN A PATIENT WITH KYPHOSIS *

MITCHELL BERNSTEIN, M.D., PHILADELPHIA

The diagnosis of intrathoracic cancer in a patient with a deformed chest obviously offers many difficulties. This is especially true in a patient with thoracic deformity when the subjective symptoms suggest the diagnosis of pulmonary tuberculosis with atypical signs. In addition, the pathologic involvement of several cranial nerves further complicates the clinical picture. However, the diagnosis of possible pulmonary cancer with cerebral metastasis, as occurred in the case herein reported, should not be overlooked.

REPORT OF CASE

History.—E. C., a man, aged 48, was admitted to the service of Dr. Bernard Kohn at the Jewish Hospital, Jan. 29, 1930, because of a chronic productive cough together with weakness, night sweats, slight fever and headache. These symptoms had existed for about four weeks prior to admission.

During infancy the patient sustained an injury to the upper spine, the exact nature of which was unknown. This injury supposedly resulted in the permanent deformity of his vertebral column. At 33 years the patient had pleurisy on the left side. About this time he developed a chronic productive cough which had persisted and which became aggravated one month prior to admission to the hospital. There was no hemoptysis. The patient had never suffered with headaches previous to one month before admission, when they made their appearance and were almost constant. Concomitant with the headache, appeared night sweats.

At the time of admission the patient developed double vision. Slight fever was present, the temperature ranging from subnormal to 100.8 F.

Physical Examination.—On admission to the hospital the patient was pale and appeared quite ill. There was a palsy of the left external rectus muscle and a slight weakness of the right side of the face. There was a loss of function of the left masseter muscle. These observations were indicative of the involvement of the left fifth, left sixth and right seventh cranial nerves. Otherwise, the cranial nerves were apparently normal. The eyegrounds did not present any changes.

Fig. 1.—Lateral view of the chest showing the marked kyphosis and the malignant mass.

Fig. 2.—Dorsal view showing the kyphosis and the malignant mass in the left lung.

The patient's chest was deformed by the presence of a marked thoracic kyphoscoliosis. Because of this deformity it was difficult to outline the heart. On percussion, the apex of the right lung was found to be impaired, both anteriorly and posteriorly. The breath sounds here were quite harsh. Vocal fremitus and pectoriloquy were increased. On the left side posteriorly there was an area of dulness, close to the kypho-

* From the Medical Service of Dr. Bernard Kohn, Jewish Hospital.

scoliotic curve and extending between the fifth and eighth ribs, to the inner border of the left scapula. Over this area the breath sounds were suppressed and at some points they were entirely absent. Vocal fremitus was diminished. Below this area the lung was hyperresonant; the breath sounds were exaggerated and vesicular in type, and showers of moist râles were heard from time to time.

The abdomen was essentially normal. The reflexes of the extremities together with the superficial abdominal reflexes were normal.

Examination of the blood showed the hemoglobin content to be 76 per cent, red blood cells 4,300,000, white blood cells 6,500, 64 per cent polymorphonuclears, 36 per cent lymphocytes. On chemical analysis the blood was normal. The blood Wassermann test was negative. The spinal fluid was removed under normal pressure, showed no chemical or microscopic abnormalities, and yielded a negative Wassermann test.

Repeated examinations of the sputum were negative for tubercle bacilli.

The feces showed no parasites or occult blood. Several examinations of the urine showed traces of albumin and occasional hyaline casts as the only abnormalities. The phenolsulphonphthalein and Mosenthal tests were normal. The gastric analysis showed a normal gastric curve.

A roentgen examination of the chest (figs. 1 and 2) was made by Dr. Sidney Feldstein, who reported that the heart shadow appeared about normal in size. Its situation was not clearly defined on account of the spinal deformity. Both domes of the diaphragm were clear. The interspaces on the right side were much farther apart than on the left, also on account of the spinal deformity, and the lung structure itself showed no abnormality. On the left side the interspaces were so close together as almost to produce contact of one rib with the other in the upper half of the chest. In the region of the root there was a distinct area of increased density. The upper lobe appeared perfectly nomal. The dorsal spine showed a marked curvature posteriorly, the upper dorsal to the right and the lower dorsal to the left.

Course.—February 3, vomiting occurred and lasted for three days. The headache which was present on admission became quite severe and annoying. The double vision persisted.

February 15, the headache became unbearable and was localized to the supra-orbital region.

March 3, following a period of acute delirium which lasted about one hour, the patient died.

Necropsy.—The essential features of the necropsy observations reported by Dr. B. A. Gouley were as follows: The trachea and lungs were removed *en masse*. There was a large intrapulmonary mass in the root of the left lung, the lesion extending out along the left main bronchus. This mass was irregular but its main portion measured about 3 by 3½ inches. The pleurae were smooth. There was an enlarged node about 1½ inches in diameter, hard and firm at the hilus of the right lung. Dissection of the trachea and the left bronchial tree revealed a bronchiogenic cancer that extended half way to the periphery of the lung and to a lesser degree toward the base. There was marked narrowing of the bronchial lumen because of the bronchiogenic hyperplasia. A purulent exudate was found over this area, extending into smaller bronchial branches. The lower lobe presented an atelectasis, some of which was undoubtedly due to the bronchial obstruction, the other possible factor being the kyphoscoliosis. The rest of the left lung, that is, the upper lobe, was emphysematous. The bronchial tree to the involved portions presented a generalized dilatation and was coated by tenacious catarrhal exudate. The right lung was large and markedly emphysematous. The bronchial tree here was uniformly dilated and similarly coated by tenacious mucus. The bronchial branches could be dissected to the extreme periphery. The appearance was that of asthma and resultant emphysema. The enlarged right bronchial lymph node presented on section firm white homogeneous tissue similar to that of the left bronchial cancer. Metastatic lesions were found at the hilus of the suprarenal. Lymph nodes found at the beginning of the common bile duct were moderately enlarged and firm and were probably the seat of early metastatic involvement.

The body and tail of the pancreas contained hard white nodules from one-half to one inch in diameter, fairly well circumscribed, presenting definite secondary characteristics. The gastro-intestinal tract showed no organic lesion.

The brain was removed and was found to be of normal size. There was no evidence of meningitis, either acute or chronic. There was a soft tumor in the pituitary area extending to the left of the midline pressing on the sixth nerve and involving the roof and the lateral wall of the left sphenoid sinus. The roof was easily broken through; the sinus appeared to be noninvolved but its lateral wall had broken down.

The essential features of the histologic report are as follows: Section of the pancreas and peripancreatic lymph node showed the presence of malignant cellular hyperplasia. The growth was made up of large round and polyhedral cells with hyperchromatic nuclei. These cells were closely packed, forming large alveolar clumps. Other areas showed the cells to be arranged in continual rows and layers. There was scanty but definite stroma formation along which these layers and alveolar clumps were arranged.

Section of the lung showed little or no part of the original lung structure. There was a diffuse fibrous proliferation in the crevices, presenting a rich growth of malignant epithelium with hyperchromatic nuclei and the cells arranged in layers of solid alveolar clumps. They were the columnar type of epithelium. The transition from the normal was not seen in this section. Another lung section showed diffuse neoplastic growth to the exclusion of all but a small piece of the original lung structure. Here was found a small distorted bronchiole, lined by a single layer of cuboidal, or even flat, epithelium. This was part of the transition process, although direct outgrowth from this point could not be seen. It was probably created from similar bronchioles showing this metaplasia.

On examination of the brain, section of the dura showed an invasion of the neoplastic tissue similar to that described in the lungs and the peripancreatic lymph node. Curiously, the new growth was confined in large thin walled spaces in which red blood cells were noted and surrounding small blood vessels that were present already. The malignant condition was denoted by their atheromatous thickening.

The cerebral lesion apparently was confined to the dura region of the infundibulum and caused compression against the pituitary body.

COMMENT

Although cases of bronchiogenic carcinoma are not uncommon, the occurrence of this disease in a patient with a deformed chest may be overlooked, or the diagnosis of pulmonary tuberculosis may be made erroneously. In addition, the involvement of the several cranial nerves, together with vomiting and headache, would suggest the diagnosis of brain tumor.

In our patient the vomiting and headache together with the involvement of the cranial nerves pointed to an intracranial complication. Of course, this may have been tuberculous. However, normal reflexes and the negative spinal fluid, together with a lesion in the left chest at an area not usually affected alone by tuberculosis, served to make the diagnosis of cancer practically certain.

In this connection it may be well to recollect that Fried and Buckley[1] have recently called attention to the fact that bronchiogenic cancer frequently metastasizes to the central nervous system. In reality, this metastasis occurs so frequently that in eleven of fifteen such cases collected by them the bronchiogenic tumor was overlooked, and the clinical diagnosis of primary brain tumor was made.

CONCLUSION

The presence of a marked kyphosis or kyphoscoliosis in any patient with pulmonary disease, during the age when carcinoma is most common, should not mislead us from keeping in mind the possibility of intrathoracic cancer. Moreover, when a patient of this type shows intracranial symptoms in addition to the thoracic signs a critical survey for primary carcinoma should be made.

1321 Spruce Street.

1. Fried, B. M., and Buckley, R. C.: Primary Carcinoma of the Lungs, Arch. Path. 9: 483 (Feb.) 1930.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, OCTOBER 11, 1930

AIR CONDITIONING FOR PREMATURE INFANTS

The adaptability of the human organism to marked variations in its external environment—changes in temperature, humidity, movements of the air and isolation—is so well perfected under the usual conditions of living that one rarely stops to consider the limitations that are sometimes imposed on such adjustments. The adult supplements his innate capacity to survive in unfavorable surroundings by means of suitable clothing, together with artificial heat or cooling devices, as the circumstances may demand for his physiologic welfare or personal comfort. Furthermore, he has learned in recent years from hygienic studies that some of the once feared and supposedly noxious factors that may insidiously threaten him are after all of negligible significance. This observation refers particularly to the product of his own respiratory functions—carbon dioxide—to variations in the oxygen content of the inspired air, and to the vague toxic components supposed to vitiate the air that has been breathed by living beings.

Scientific investigation has discovered either that these dreaded menaces are nonexistent, as in the case of the "respiratory poison," or that they are of little significance under the ordinary conditions of life in relation to adult man. The latter can endure relatively high concentrations of carbon dioxide without deleterious effect or any consequences other than an augmented rate of respiration. Shortage of oxygen ordinarily occurs only at high altitudes or in such exceptional situations as may be presented by submarine disasters. Man has thus learned that his welfare and particularly his sense of well being depend, so far as the environmental influences are involved, largely on the ability to preserve the normal function of his heat-regulating mechanism. The latter represents one of the marvelous devices of man's physiologic equipment.

The preservation of a fairly uniform body temperature, representing a remarkable adjustment between heat production and heat loss in the midst of changing atmosphere and metabolism may be annulled by disease. It is admittedly imperfect during the early days of life. The infant not only is helpless with respect to the adjustments represented by variations in clothing, but also only gradually develops to better efficiency the physiologic mechanism designated as temperature control. Even more helpless and maladjusted are the prematurely born infants coming into the world between the sixth and the ninth month of fetal life—puny prospects weighing between 1½ and 5½ pounds. Most unfortunate are the congenitally diseased or sick premature infants suffering from congenital anomalies, birth injuries and acute or chronic infections.

A recent writer has defined success in the treatment of premature infants as depending mainly on four factors: stabilization of body temperature, proper nutrition, nursing care, and prophylaxis against infection. The management of body temperature has until comparatively recently depended on special heating devices such as hot pads, heated beds and electrical incubators. Of late, however, plenum systems of heating and ventilation have received consideration and begun to obtain some vogue.[1] A group of investigators [2] at the Harvard School of Public Health and the Harvard University Medical School in Boston have pointed out that, although the importance of air temperature has been generally appreciated, the direct effects of humidity and rate of air change on body temperature, with their indirect effects on nutrition, growth, infection and the like, have not been fully understood. Doubtless part of this criticism would apply in some measure to conditions of adult living also. Most of the methods now in use, we are told further, have failed to fulfil the environmental needs of premature infants on account of limited air space, inadequate ventilation, insufficient humidification in winter, and lack of facilities for cooling and dehumidifying the air in warm weather. The authors assert that when mechanical ventilation is used there has been a tendency to fix the temperature of a single room at 80 F., regardless of the humidity and of the individual requirements of the infants.

The problem of proper air conditioning is one for the engineer rather than the physician. The latter must, however, establish the physiologic requirements that the apparatus shall meet. The comfort zone and effective temperature index determined for adults [3] cannot be applied without reserve to infants who still have aberrant metabolic and circulatory functions as well as incomplete development of their sweat glands. From observations on body temperature, gain in weight,

1. Hess, J. H.: Premature and Congenitally Diseased Infants, Philadelphia, Lea and Febriger, 1922.

2. Yaglou, C. P.; Drinker, Philip; and Blackfan, K. D.: Application of Air Conditioning to Premature Nurseries in Hospitals, Am. Soc. Heating & Ventilating Engineers J., Section of Heating, Piping and Air Conditioning, 1930.

3. Houghten, F. C., and Yaglou, C. P.: Determination of the Comfort Zone, Tr. Am. Soc. Heating & Ventilating Engineers **29**: 361, 1923, Yaglou, C. P., and Miller, W. E.: Effective Temperature with Clothing, ibid. **31**: 89, 1925.

incidence of diarrhea, mortality, and general behavior of premature infants under various humidity conditions, the Boston investigators [2] adopted a relative humidity of 65 per cent as most satisfactory. Low humidities, such as prevail in many nurseries during cold weather, tended to promote instability of body temperature and other untoward symptoms. The temperature requirements for normal premature infants varied from 75 to 88 F. With the congenitally diseased infants the desirable temperatures of environment showed even greater ranges. Temperatures as high as 100 F. are sometimes temporarily employed. These are attained by the use of individual electrical incubators placed with tops open inside the larger nursery. In this way the infants breathe the comparatively cool room air at about 65 per cent humidity, and the persons in attendance are not subjected to extreme temperature conditions. At the Infants' Hospital in Boston a ventilation rate of twenty-five air changes an hour and an air movement of 15 feet a minute in the nurseries for premature infants have been found advantageous. The application of air conditioning has been followed by marked reduction in the incidence of diarrhea and the mortality rate. Infections were reduced and gains in body weight increased. These are statistical facts. The benefits must be attributed, however, to advances in medical treatment and improvement in nursing and general care, as well as to the installation of a carefully planned air conditioning system.

THE CEREALS IN NUTRITION

The cereal grains are the backbone of the nutrition of most of the races of the earth. They are, as a rule, the cheapest sources of food fuel; so that corn, wheat, rice, rye, barley and oat kernels are to be found constituting a third or often much more of the calory intake of the millions of persons involved. Some of these cereal products are used in almost the same form as that in which they are supplied by nature. They may be ground or pulverized and cooked, but not otherwise greatly altered. On the other hand, a few of the cereal seeds are manipulated or milled so that a part of the natural kernel is discarded. This is notably true of rice and wheat; in lesser degree also of corn. Aside from these alterations, however, there is a running debate as to the relative nutritive values and physiologic properties of the various cereals. From the chemist's standpoint there is little occasion to attribute any especial superiority to one of the common cereal grains over its usual competitors. All are abundant in starch, have a modicum of protein that does not quite match most animal proteins in biologic value, include essentially the same content of a few inorganic ingredients, and have a complement of vitamins that is not conspicuous or diversified. Despite this, one may observe the dispute of relative virtues entering from time to time into the propaganda for trade preference.

A recent issue of the *Journal of Nutrition* contains a number of contributions [1] that may serve to dispel misgivings regarding any great differences among the commonly eaten whole grain cereals. Mattill has substantiated earlier investigations in showing how small are the differences between the oat and wheat under comparable feeding tests. The oat protein apparently possesses a slight advantage over the wheat protein, and the presence of a small amount of bran in the latter does not alter its biologic value. In terms of comparative figures, the data are 89 for milk, 82 for oats and 73 for wheat preparations.

In studies of the gastric response to different cereal breakfast foods, Clough, Carman and Austin observed only slight differences in the rates of evacuation of the stomach when different products formed the test meal in the same person. The foods were cooked in a uniform manner and eaten with the same amount of sugar and cream in each instance. On the average, wheat endosperm and whole oats showed 83 per cent and 76 per cent, respectively, evacuation at the end of the same periods of observation. Roughage in the form of bran in normal proportions or less appeared to influence evacuation time of the stomach but little in any way.

Current Comment

THE SO-CALLED HEART HORMONE

The demonstration that a few tissues of the body yield chemical substances that are physiologically potent in small quantities has led to the search for "active principles" in many organs. Secretin, insulin and epinephrine are significant illustrations of the accomplishments of the past. The quest of hormones has become the ruling passion as well as the scientific pastime of many investigators. One reads of alleged discoveries of a kidney hormone, an intestinal hormone, and even of a heart hormone. The latter has been postulated as a constituent of extracts of the heart tissue having a characteristic stimulating action on the organ itself. The possibility of producing such effects is admitted; but that there is anything specific in cardiac tissue extracts has been repeatedly denied.[2] An explanation for the known phenomena seems to be afforded by Thorpe's isolation of histamine from the heart.[3] Extracts of the ventricles show a powerful depressor activity that is readily explained by the presence of the amino-acid derivative. In view of the relatively large amounts of histamine both in auricular and in ventricular tissue, it seems probable to Thorpe that the reputed cardiac stimulating effect of heart extracts may be due wholly or at least in large part to that substance. Other tissues also yield histamine; it therefore cannot be a specific heart hormone.

1. Clough, H. D.; Carman, J. S., and Austin, E. M.: Nutritive Value of Cereal Breakfast Foods: IV. Response of the Human Stomach, J. Nutrition **3**: 1 (July) 1930. Mattill, H. A.: V. The Biological Value of Some Cereal Proteins as Determined on Rats, ibid., p. 17.
2. Oppenheimer, E. T.: Am. J. Physiol. **90**: 656 (Nov.) 1929.
3. Thorpe, W. V.: The Isolation of Histamine from the Heart, Biochem. J. **24**: 626, 1930.

THE SUGAR IN PENTOSURIA

The nature of the carbohydrate in the urine in ordinary cases of glycosuria has long been established as dextrose. It has the familiar and characteristic properties of reducing alkaline copper solutions, rotating the plane of polarized light, and undergoing alcoholic fermentation with yeast. For decades, physicians have been in the habit of testing urine with Fehling's solution or one of its more modern substitutes; and the reduction produced in it by sugar-containing urine has served as a diagnostic index. Dextrose is, however, not the only substance appearing in urine that reduces Fehling's solution. Nearly forty years ago Salkowski and Jastrowitz [1] of Berlin described the first recognized case of pentosuria in man. The origin of the five-carbon sugar in human metabolism still remains obscure, as does the precise chemical structure of the particular pentose that is excreted in an anomalous manner. There have been reports that the sugar is a form of arabinose, $C_5H_{10}O_5$; but the most convincing identifications pointed to *d*-xyloketose as the unique carbohydrate present in the urine of pentosuria. This has now been substantiated for four additional patients by Greenwald [2] of New York University. The establishment of the usual, if not the invariable, structure of the sugar will pave the way toward a better interpretation of the biochemical significance of an "inborn error of metabolism."

1. Salkowski, E., and Jastrowitz, M.: Centralbl. med. Wissensch. **30**: 337, 1892.
2. Greenwald, I.: The Nature of the Sugar in Four Cases of Pentosuria, J. Biol. Chem. **88**: 1 (Aug.) 1930.

THE BACTERIA RESPONSIBLE FOR UTERINE SEPSIS

Not every case of fever in the puerperium is attributable to genital sepsis. The first step in incriminating specific bacteria in cases of puerperal morbidity is to discover by careful clinical examination as well as by the bacteriologic examination of the uterine contents which cases may be properly classified as uterine sepsis. Using both these methods in a study of 125 febrile cases, Taylor and Wright [3] have found in 50 cases certainly and in 27 others probably that fever was due to an extra-uterine cause. In 48 cases there was definite uterine sepsis. Of these, 14 were caused by hemolytic streptococci, 10 by anaerobic cocci and eight were mixed infections with *B. coli* predominating. Only two of the cases ended in death, and each of these patients was infected with type I pneumococci. Not all of these patients had been examined before delivery, but of the 21 who had been so examined only 4 harbored the causative organism in the vagina at the time of examination. The writers therefore concluded that bacteria present in the vagina before delivery are apparently a less serious danger than those which enter during or after labor. They lay emphasis on the frequency with which they have found anaerobic cocci in septic uteri, a finding in accordance with the previous work of Harris and Brown at Johns Hopkins.[4] The prognosis of genital infection cannot be made from a bacteriologic study of the flora. Prognosis and diagnosis, here as elsewhere, are essentially a clinical problem. The bacteriologist may, however, render valuable service in tracing the origin of exogenous infection. It was proved, for example, in the study of Taylor and Wright that one of the fatal infections with type I pneumococci was derived from the nose of an attendant. More definite knowledge is needed as to the chief sources of dangerous exogenous infection during the puerperium, and bacteriologic research must provide the next advance in this direction.

3. Taylor, Joan; and Wright, H. D.: The Nature and Sources of Infection in Puerperal Sepsis, J. Obst. & Gynec. Brit. Emp. **37**: 213 (summer) 1930.
4. Harris, J. W., and Brown, J. H.: Bull. Johns Hopkins Hosp. **44**: 1 (Jan.) 1929.

LIPOID HISTIOCYTOSIS

The histiocytes are large phagocytic interstitial cells forming a part of the reticulo-endothelial system. In lipoid histiocytosis, or Niemann's disease, the histiocytes undergo a change; they become filled with cholesterol fat which gives them a foamy appearance; hence the name foam cells. In lipoid histiocytosis, masses of foam cells may lie free in the alveoli of the lungs and may be packed in the pulp of the spleen and the sinusoids of the liver; they almost completely replace the marrow cells in the bones and fill the sinuses in the lymph nodes. The principal microscopic feature of lipoid histiocytosis is the presence of great numbers of vacuolated foam cells in the spleen, liver, lymph nodes, bone marrow, lungs, suprarenal, thymus and lymphoid structures of the intestine and the central nervous system. Clinically, lipoid histiocytosis is characterized by progressive emaciation, enlargement of the spleen and liver, and death before the patient is 2 years of age. The patients are usually physically and mentally retarded; brownish pigmentation of the skin may be present, with slight enlargement of the lymph nodes, a moderate leukocytosis and a slight progressive anemia. The historical background of lipoid histiocytosis is related by Baty,[1] who has placed on record the sixteenth case of this recently discovered clinical entity. In 1914, Niemann reported a case of Gaucher's disease in an infant. Knox, Wahl and Schmeisser reported later two similar cases in infant sisters; Siegmund reported the fourth case in an infant. In studying this group of four cases, Pick brought out the fact that they had peculiar characteristics in common: the age of onset, the clinical course, the distribution of the foam cells in the viscera, and the racial tendency. He clearly established this condition as a clinical entity entirely distinct from Gaucher's disease. Bloom reported three more cases and proposed the name "lipoid histiocytosis" to designate a condition which involved the storage of lipoid material in the histiocytes throughout the body. Single cases have been reported since, until the total has reached sixteen. It may be significant that eight of them have been reported in the last three years. The cause of this rare disease of infants is unknown. There is no evidence of developmental anomalies to explain the symptoms. The failure to store fat in the normal depots may be an indication of a profound metabolic distur-

1. Baty, J. M.: Lipoid Histiocytosis (Niemann's Disease), Am. J. Dis. Child. **39**: 573 (March) 1930.

bance, and the entire symptomatology may be only the secondary effect of that disturbance. In his report, Baty interestingly speculates as to whether or not this is a new affliction of man, possibly brought about by the change of diet coincident with the advance of civilization. It seems that a condition with pathologic changes so striking would have been recognized before, if it had been in existence.

Association News

ABSTRACT OF MINUTES OF MEETING OF BOARD OF TRUSTEES HELD IN CHICAGO, SEPT. 25 AND 26, 1930

The Board of Trustees met in Chicago on Thursday and Friday, Sept. 25 and 26, 1930.

COMMITTEE TO STUDY PROBLEMS OF MENTAL HYGIENE AND HOSPITALS

To meet the instructions from the House of Delegates, the Board appointed the following Committee to Study Problems of Mental Hygiene and Hospitals: Drs. H. Douglas Singer (chairman), Chicago; Walter L. Treadway, Washington, D. C.; J. Allen Jackson, Danville, Pa.; F. G. Ebaugh, Denver, and E. J. Emerick, Columbus.

PUBLIC HEALTH CONFERENCE POSTPONED

Because of the inability of a large number of state health officers to attend the conference on public health this year, it was decided to postpone the proposed conference until 1931.

REPLICA OF EX-PRESIDENTS' MEDAL TO BE PLACED IN THE MUSEUM OF THE CLEVELAND MEDICAL LIBRARY ASSOCIATION

In response to a request from the curator, a replica of the medal presented to ex-presidents of the Association at the Detroit session will be placed in the museum of the Cleveland Medical Library Association.

DR. LOUIS CASAMAJOR ELECTED TO EDITORIAL BOARD OF ARCHIVES OF NEUROLOGY AND PSYCHIATRY

Dr. Louis Casamajor of New York was elected a member of the editorial board of the *Archives of Neurology and Psychiatry* to succeed Dr. Samuel T. Orton, who tendered his resignation because of press of other duties.

COMMITTEE ON ENTERTAINMENT AT ANNUAL SESSIONS

Drs. Austin Hayden and F. C. Warnshuis were appointed a Committee on Entertainment at Annual Sessions, with power to add to the committee a sufficient number to carry out the plans of the Board of Trustees.

COMMITTEE ON LEGISLATIVE ACTIVITIES

As requested by the House of Delegates, the Board of Trustees appointed a committee on legislative activities, the personnel of which is: Drs. J. H. J. Upham, Columbus, Ohio; Thomas Cullen, Baltimore; D. Chester Brown, Danbury, Conn.; C. B. Wright, Minneapolis, and E. H. Cary, Dallas, Texas.

FOREIGN BODIES IN RESPIRATORY PASSAGES IN CHILDREN

The resolution of Dr. J. D. Brook of Michigan, which was presented to the House of Delegates, concerning foreign bodies in respiratory passages in children was referred to the Bureau of Health and Public Instruction, with the request that that body take the matter up with the manufacturers of children's toys.

REPORT OF COMMITTEE ON SCIENTIFIC EXHIBIT

The report of the Committee on Scientific Exhibit was approved. Dr. Ralph H. Major and Dr. Hans Zinsser were elected to succeed themselves as members of the Advisory Committee, and the incoming chairman of the Council on Scientific Assembly, Dr. John E. Lane, was elected an ex-officio member of the committee.

COMMITTEE ON MOTION PICTURE AND TALKING FILM IN MEDICINE

In response to the request of the House of Delegates, Dr. Carl H. Davis of Milwaukee and Dr. C. P. Emerson of Indianapolis were appointed a Committee on Motion Picture and Talking Film in Medicine. A third member will be selected.

RESOLUTION FROM MINNESOTA STATE MEDICAL ASSOCIATION PERTAINING TO TRAINING OF RESERVE OFFICERS

The resolution adopted by the House of Delegates of the Minnesota State Medical Association, proposing that changes in the army regulations concerning reserve officers should be made to provide for recommission and reassignment of chiefs and assistant chiefs of professional services of hospital units, even though they have not completed the required amount of military work, having been reported on by the Committee on Military Affairs and National Defense, was not approved by the Board of Trustees.

BUREAU OF MEDICAL ECONOMICS

The organization of a Bureau of Medical Economics is in progress and will receive further consideration at the next meeting of the Board of Trustees.

LEAVE OF ABSENCE FOR DR. NATHAN P. COLWELL

A leave of absence to the first of the year 1931 was granted for Dr. Nathan P. Colwell, secretary of the Council on Medical Education and Hospitals.

DATE OF PHILADELPHIA SESSION OF THE ASSOCIATION

The week of May 11 was decided on for the next annual session of the Association, to be held in Philadelphia, in 1931.

MISCELLANEOUS BUSINESS

Many other matters of importance were considered; some were referred to various councils and bureaus; action on others was deferred until a later meeting.

THE PHILADELPHIA SESSION

Application Blanks for the Scientific Exhibit

Circular letters containing the information on the Scientific Exhibit for the 1931 session, together with the application blanks, will be mailed about the middle of November. Any who desire to receive the circular letter and application blank should mail a request to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago. The Committee on Scientific Exhibit requires that all applications for space must be made on the regular application form.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, Tuesday and Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

October 13. If I Were Mussolini.
October 14. Drink to Your Health.
October 18. The Work of a City Health Department.

Five minute health talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays, from 12 to 12:05 p. m.

The program for the week is as follows:

October 13. Accidents Can Be Prevented.
October 14. Concerning Cancer.
October 15. The Carbon Monoxide Monster.
October 16. The Likelihood of Longevity.
October 17. Crashing the Health Gate.
October 18. Exceptional Exercise.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Society News.—The annual state health conference, September 11-12, was addressed, among others, by Drs. Jesse D. Riley, State Sanatorium, on the care and treatment of tuberculous patients, and Frank Vinsonhaler, dean, University of Arkansas School of Medicine, Little Rock, "Rôle of the Medical School in Preventive Medicine."——The Craighead-Poinsett County Medical Society was addressed, August 7, by Dr. Homer A. Stroud, Jonesboro, on tularemia.——The Jefferson County Medical Society was addressed, September 2, by Dr. Joseph F. Gill, Pine Bluff, on typhoid.——The Tri-County Medical Society (Union, Ouachita and Columbia counties) was addressed, September 4, at Camden by Drs. Rufus B. Robins, Jr., Camden, on "Cardiolysis"; Morris S. LeDoux, Shreveport, La., "Modern Treatment of Syphilis"; Robert G. Douglas, Shreveport, La., "Diseases of the Colon," and Jesse D. Riley, State Sanatorium, tuberculosis.

CALIFORNIA

Society News.—The Butte County Medical Society was addressed at Oroville in September by Drs. Francis H. Redewill on "Modern Therapeutic Treatment in Urology," and James E. Potter on "Treatment of Tertiary Syphilis." Both speakers were from San Francisco.

Diphtheria Decreases. — The San Diego City Health Department reports that no deaths from diphtheria occurred between January 1 and September 10. Only twenty cases were reported during this period. During the year there were twenty-three out of thirty-six weeks in which no cases were reported, and eleven consecutive weeks with no cases. Immunization against diphtheria, which was inaugurated in 1926, has proceeded continuously. An intensive campaign has been carried on this year. The cases have dropped from 251 in 1926 to 85 in 1929.

Changes Among Health Officers.—Dr. Herbert F. True became city health officer of Sacramento, September 15, succeeding Dr. James R. Snyder, city bacteriologist, who had been acting health officer since the resignation of Dr. John Howard Hall. Dr. Roy E. Allen is now city health officer of Reedley, succeeding Dr. John D. Hare. Dr. Paul G. Capps has been appointed health officer of Contra Costa County to succeed Dr. Ira O. Church, who has been granted a leave of absence of one year to take postgraduate work at the Johns Hopkins University School of Public Health at Baltimore.

GEORGIA

Personal.—Dr. James L. Bevans has resigned as director of the John D. Archbold Memorial Hospital, Thomasville, with which he has been connected for seven years, coming as its first superintendent. His successor has not been appointed. Dr. Bevan's resignation will become effective, February 1.

ILLINOIS

Restoration and Revocation of Licenses.—The department of registration and education announced the restoration, September 4, of the medical license of Dr. Louis H. Hayes, Alton, which was revoked, June 3, 1927, on the grounds of conviction for violation of the Harrison Narcotic Act. The license of Dr. Ernest Richard Neubert, Marshall, was revoked, September 11, on the grounds of conviction of violation of the Harrison Narcotic Act. The license of Dr. George E. Fosberg, Chicago, was revoked, August 21.

Prevention of Trachoma.—At a series of clinics sponsored by the U. S. Public Health Service, the Illinois Society for the Prevention of Blindness and the state department of public health recently, 125 cases of trachoma were discovered in southern Illinois. About 600 people among relatives or close contacts of blind pensioners were examined. The state department of health has recently appointed a full-time nurse who will promote the care of patients. Her duty will be to follow up all cases with the idea of getting them under competent medical care.

Society News.—The conference of Illinois Health Officers and the Illinois Municipal League will be held, October 16-17, at Springfield. Among the speakers will be Drs. Allan J. McLaughlin, U. S. Public Health Service, on "Trends in Public Health Service"; Joseph W. Mountin, director, rural health service, Tennessee State Health Department, "The Legitimate Field of the Health Officer"; Don M. Griswold, deputy health commissioner of Michigan, "Diphtheria Control Outlook"; Gilbert Fitzpatrick, "Cancer and the Public Health"; Clarence W. Hopkins, Chicago, "The Experience of a Railroad with Preventive Medicine," and Siegfried Maurer, Chicago, "Program for Saving the Infant Under One Week Old." The luncheon for health officers will be addressed by Dr. William F. King, state health commissioner of Indiana, on "Economics of Public Health Work."——Dr. Robert J. Crossen, St. Louis, talked on "New Aspects of Uterine Bleeding" before the St. Clair County Medical Society, East St. Louis, October 2.

Chicago

Personal.—Lord Berkeley Moynihan was recently guest of honor at the Murphy Memorial Building, where he had given the initial Murphy Memorial Lecture.

Founders' Day Celebrated at Northwestern. — The seventy-second anniversary of the celebration of the founding of Northwestern University Medical School was observed on McKinlock Campus, September 30. The principal speaker was Dr. Isaac A. Abt, who reviewed medical history of recent years as related to medical education in America.

Oxygen Rooms for Treatment of Pneumonia. — Two oxygen rooms for the treatment of patients with pneumonia were recently opened at the Michael Reese Hospital. The rooms constructed at a cost of $10,000, are made of regular building materials instead of special materials used in some other oxygen rooms. The room can be charged with the maximum of oxygen needed in from three to five minutes. One door is large enough so that the patient can be rolled into the room on a bed. The door then is closed and a small door which leads into an airlock is used for the entrance and exit of nurses and physicians.

Society News.—The Chicago Society of Industrial Medicine and Surgery was addressed, October 1, by Dr. John A. Wolfer on "Lesions of Abdominal Viscera Encountered by the Industrial Surgeon." A motion picture film on traumatic surgery of the extremities was shown. —— The second annual Arthur Dean Bevan lecture of the Chicago Surgical Society was delivered before a joint meeting of the Institute of Medicine of Chicago, Chicago Society of Internal Medicine and the Chicago Society of Medical History and the Chicago surgical, neurologic and pediatric societies, October 3, by Dr. Harvey Cushing, Boston, on "The Cerebellar Astrocytomas."——A joint meeting of the Institute of Medicine of Chicago and the Society of Internal Medicine of Chicago will be addressed, October 27, by Prof. Otfried Foerster, Breslau, Germany, on "Anatomic, Physiologic and Clinical Observations Concerning Chordotomy," —— The Chicago Council of Medical Women was addressed, October 3, by Drs. Esther S. Nelson on "Vitamin D," and Mabel M. Matthies, "Vaginal Flagellosis."

INDIANA

Personal. — Dr. Frederick E. Jackson, Indianapolis, was recently elected president of the board of public health, to succeed Dr. Henry S. Leonard. Dr. Herman G. Morgan will continue as secretary of the board of health, and Dr. William A. Doeppers will continue as superintendent of Indianapolis City Hospital.

Society News.—The Indianapolis Medical Society will be addressed, October 21, by Drs. Murray N. Hadley and Lyman R. Pearson on "Cause of Death in Operative Treatment of Gallbladder Disease" and "Cirrhosis of the Liver," respectively. Dr. Edward Starr Judd, Rochester, Minn., will address the October 28 meeting.——The Gibson County Medical Society was addressed, September 8, by Dr. John H. Hare, Evansville, on the feeding of babies.——The Madison County Medical Society was given a banquet at St. John's Hospital, September 9, after which Dr. Edwin N. Kime, Indianapolis, gave an address and conducted a clinic showing the methods of treatment of common skin lesions.

IOWA

Hospital News.—The Iowa State Psychopathic Hospital, Iowa City, announces openings for two resident physicians and two interns each year in psychiatry. These men must have a good general hospital internship to make them eligible as interns or residents of the hospital, and the resident physicians must also have had psychiatric experience. The Iowa Psycho-

pathic Hospital is the clinical basis of the department of psychiatry and is also the psychopathic division of the University Hospital, which, with all its divisions, is the clinical base of the College of Medicine of the University of Iowa.

KANSAS

Society News.—The University of Kansas School of Medicine has announced that the second series in the Porter Lectureship will be given by Dr. Joseph Collins of New York. The subjects are "Medical Progress and the Specialties" (October 13); "Symptoms of Spiritual Starvation" (October 14), and "Success and Satisfaction in the Practice of Medicine" (October 14).

LOUISIANA

Society News.—The Seventh District Medical Society was addressed in Opelousas recently by Dr. Lucien A. LeDoux, New Orleans, on "Some Functional Disturbance of the Ovaries."

Personal.—The board of administrators of Charity Hospital of Louisiana, New Orleans, tendered a reception, October 5, to Dr. Amédée Granger on the occasion of his twenty-fifth anniversary of continuous service as the chief of the department of radiology.

MARYLAND

Sanitation of Soda Fountains. — The Baltimore City Health Department is conducting a campaign to require proprietors of soda fountains to comply with the state law requiring drinking glasses and spoons to be properly cleansed. An act of the legislature of 1912, dealing with common drinking cups, prohibits the consecutive use of cups, glasses, dippers and other drinking vessels in public places without previous cleansing or disinfecting by washing in clean water containing soap or an alkaline detergent, and subsequent rinsing and cleaning in running water or by some other method approved by the state board of health.

Typhoid in Baltimore County.—Health officials attribute the spread of typhoid in Baltimore to infected milk or water in places where patients spent summer vacations. With the definite diagnosis of five suspects by the health officer for Baltimore County, the Woodlawn typhoid outbreak claimed its fortieth case, September 23. There have been eighty-five cases of typhoid in the city since January 1, as compared with fifty-two for the corresponding period of 1921. The Woodlawn outbreak, which was traced to milk delivered by a typhoid carrier, resulted in an order to discontinue the milk supply and the inoculation of all recommended patrons.

MASSACHUSETTS

Reinstatement Refused.—The petition of Dr. Joseph N. Tessier, New Bedford, for reinstatement by the board of registration in medicine was refused, September 11. His registration as a physician in Massachusetts was revoked several years ago.

Fund Selects Site for Rural Health Project.—The Commonwealth Fund has chosen Massachusetts as the second state in which to develop a rural health project under the terms of its new program for cooperation with the state health departments in promoting rural health. The unit for the health service demonstration will be a group of five or six towns with from 15,000 to 25,000 people which voluntarily unite for the purpose. Two such groups will be formed and each will organize a board of health with representatives from the several towns. A field unit will be formed in the state department to promote rural health progress throughout the state and particularly to guide the development of the two centers of intensive work.

Dedication of Sixth Health Unit.—Dedication exercises at the opening of the sixth health unit, established through the George Robert White Fund, were held, September 15, at Boston. Mayor Curley, in accepting the gift on behalf of the city, stated that the whole plan of the health units in Boston was conceived at a meeting held in Boston about fifteen years ago with Drs. Richard C. Cabot, health commissioner, Francis X. Mahoney and Charles F. Wilinsky. The first unit, established in 1915, was so successful that it was the beginning of a series of these units, which are educational institutions functioning for the training of the public in an understanding and practice of health conservation. The dedicatory address was given by Lee K. Frankel, Ph.D., New York, and an address was later made by Dr. Milton J. Rosenau of Harvard University.

MICHIGAN

State Medical Election.—At the recent annual meeting of the Michigan State Medical Society, Dr. Ray C. Stone, Battle Creek, was installed as president; Dr. Carl F. Moll, Flint, was made president-elect; Dr. John R. Rogers, Grand Rapids, treasurer, and Dr. Frederick C. Warnshuis, Grand Rapids, secretary, reelected.

MINNESOTA

Society News.—The eighth annual convention of the Minnesota Congress of Parents and Teachers, to be held, October 28-30, at Minneapolis, will be addressed among others by Dr. Lawrence R. Gowan, Duluth, on "Mental Hygiene." The joint session of the Minnesota State Medical Association, state board of health, division of child hygiene, Northwest Conference of Child Health will be addressed by Dr. William A. O'Brien, Minneapolis, on "New Childhood," and Dr. Morris Fishbein, Chicago, "Foods, Fads and Follies." Presentation of the summer round-up prizes will be made by Dr. Edward A. Meyerding, secretary, state medical society.

Training School for Reserve Officers. — The second annual inactive duty training period for medical reserve officers will be held at Rochester, November 9-23, under the sponsorship of the Mayo Foundation, directed and personally supervised by instructors of the medical board of the U. S. Army detailed for the purpose. The school offers opportunities for officers who have not received summer training to earn 100 hours toward the required number for promotion at the expiration of their respective periods of appointment. The curriculum embraces basic subjects essential to all medical officers and will cover a period of fourteen days of seven hours each. All medical reserve officers are eligible and arrangements have been made to allow visiting officers to attend clinics in the mornings and schools of instruction during the afternoons and evenings. Any physician wishing to join the reserve corps should apply at once for a commission and when commissioned will be qualified to register for the course. Further information may be obtained from Col. Louis B. Wilson, Mayo Foundation, Rochester.

MISSISSIPPI

Personal.—Dr. Sam L. Hutchison, assistant superintendent, Natchez Charity Hospital, Natchez, has resigned to engage in private practice.——Dr. Hernandez Lira, representing the health department of the Mexican government, has recently been making a special study of hookworm disease control in the protection of the preschool child and in maternal hygiene.

MISSOURI

Society News.—The Jackson County Medical Society was addressed, September 23, by Dr. Wilbur A. Baker, Kansas City, on "Gastro-Intestinal and Metabolic Factors in Arthritis"; Dr. Ferdinand C. Helwig conducted a pathologic conference, and Dr. Robert McE. Schauffler, Kansas City, gave an abstract of recent literature on arthritis.——The Jackson County Medical Society was addressed, September 30, by Drs. Wilson A. Myers, Kansas City, on "Spondylolisthesis with Special Reference to the Etiology and Pathology," and Edward P. Heller, Kansas City, "Rôle of Back Injuries in Production of Renal and Perirenal Pathology."——The heart campaign sponsored by the Health Conservation Association of Kansas City was started with the lecture, October 7, by Dr. Leonard G. Rowntree, Rochester, Minn., on "Recent Advances in the Study of Heart Disease."

NEBRASKA

Society News. — Dr. Ephraim Korol, Maywood, Ill., addressed the Omaha-Douglas County Medical Society, September 23, on "Emphysema and Pneumothorax," and Dr. John Jay Keegan, Omaha, "Surgery of the Sympathetic Nervous System," with case reports.——The Ninth Councilor District Medical Society was addressed, September 9, at Grand Island, by Drs. Robert D. Schrock, Omaha, on "Fractures at the Elbow"; Eugene C. Foote, Hastings, "Eye Conditions in India," illustrated; Eli A. Watson, Grand Island, "Surgery of the Upper Abdomen," and Ernest Kelley, Omaha, "The Mechanism of Hysteria."

NEW MEXICO

Personal.—Public health workers from over the state gave a farewell dinner for Dr. George S. Luckett in Santa Fe, August 23. Dr. Luckett recently resigned as state health officer to become professor of hygiene at Leland Stanford

University. He will be succeeded by Dr. Charles W. Gerber, who has been county health officer of Dona Ana County for several years.

NEW YORK

Society News.—The Medical Society of Niagara County was addressed, September 9, by Dr. Claude E. McDermid, Niagara Falls, on "Rôle Played by Spinal Nerves in Functional Disturbances of Digestion."——The Buffalo Academy of Medicine was addressed, October 1, by Dr. Géza de Takáts, Chicago, on "The Causes of Failure in the Treatment of Varicose Veins."

New York City

First Harvey Lecture.—Dr. Robert F. Frank will deliver the first Harvey Society Lecture at the New York Academy of Medicine, October 16, on "The Female Sex Hormone."

Hospital News.—The staff of the Greenpoint Hospital, Brooklyn, with the approval of the commissioner of the department of hospitals, is undertaking an intensive study of diabetes in children. In order to have sufficient cases for study, this condition being relatively uncommon, physicians are requested to direct children suffering from diabetes to this hospital.

Appointments at Columbia University.—The following appointments to the medical faculty of Columbia University have been announced: Crawford F. Failey, Ph.D., and Warren F. Sperry, Ph.D., assistant professors of biologic chemistry; Dr. Rustin McIntosh, to be professor in diseases of children; George W. Bachman, Ph.D., of the School of Tropical Medicine, San Juan, P. R., to be associate professor in parasitology, and Dr. Samuel T. Orton, New York, to be professor in neurology and neuropathology.

Study of Hospital Practice.—The New York Academy of Medicine, in its recent annual report, advocates an intensive study of hospital practice including the qualification of methods of appointing the medical personnel and the methods of recording case history and pathologic observations. Such a course is said to be necessary to guard against unnecessary operations, which are said to be performed in some of the unsupervised hospitals of the metropolitan district. Such a study of hospitals should include public and private hospitals as well as incorporated and unincorporated hospital nursing homes. The officials of the academy predict that, unless some supervision is exercised over some hospital practice, state supervision of all hospitals will follow in the immediate future.

Society News.—Dr. Cyrus C. Sturgis, director, Thomas Henry Simpson Memorial Institute for Medical Research, University of Michigan, Ann Arbor, will deliver the Middleton Goldsmith Lecture for 1930 of the New York Pathological Society, October 18, at the New York Academy of Medicine, on "Recent Development in the Treatment of Pernicious Anemia and a Consideration of the Etiology of the Disease."——The New York Academy of Medicine was addressed, October 3, by Drs. Norman E. Treves and George T. Pack on "The Development of Cancer in Burn Scars."——"Intravenous Urography as a Diagnostic Method" was the subject of Dr. Moses Swick before the Harlem Medical Association, October 3.——The Brooklyn Pediatric Society opened its new season with a meeting, September 24, addressed by Dr. Fred Maurice McPhedran, Philadelphia, on "Child Tuberculosis."

Radium in New York Hospitals.—Radium to the amount of 13.342 grams, worth $1,000,000, is available to the hospitals of New York City, according to a survey of hospital facilities for cancer treatment recently made by the New York Cancer Committee. The survey states, according to *New York Medical Week*, that the present cost of a gram of radium is $70,000. The largest stock of radium in the city is said to be owned by Memorial Hospital, which owns 4 grams and has the use of 4 grams loaned by special trustees. The New York Cancer Institute has the use of 2 grams and Bellevue Hospital has the use of 1, all owned by the department of hospitals. The survey declares that the need for more adequate care for cancer patients still exists, calls for the development of a special cancer hospital, and points out that early diagnosis and treatment either by radiation or by surgery is essential to a successful outcome.

Fraudulent License Returned.—The endorsement to practice medicine and surgery in New York, based on credentials from Wisconsin and given to "Dr. Paola S. Marzio" was recently returned to the state board of medical examiners. Marzio claimed to be a 1928 graduate of the University of Chicago and to have obtained a license to practice medicine in Wisconsin. There is no record at the headquarters of the American Medical Association of a Paola S. Marzio, and, according to information received, there is no record of a Paola S. Marzio ever having been registered in any department of the University of Chicago or of being licensed in Wisconsin. The American Medical Association does have record, however, of a Paul Victor Marzio who claims graduation from both the St. Louis College of Physicians and Surgeons and the Kansas City College of Medicine and Surgery in 1922. Paul Victor Marzio was licensed by the Connecticut Eclectic Medical Examining Board in November of the same year. This license was one of 175 which were revoked, Feb. 1, 1924, following an investigation of the diploma mill and license scandal. On claims being presented that his credentials were fraudulent, the endorsement of Paola S. Marzio was returned.

Campaign Against Venereal Disease.—Officers of the Bellevue-Yorkville Health Demonstration have invited every physician in Manhattan and the Bronx to a series of lectures to be given at the Bellevue-Yorkville Center as follows: October 9, Drs. Shirley W. Wynne, "Public Health Control of Syphilis and Gonorrhea" and Edward L. Keyes, Ithaca, N. Y., "Gonorrhea in the Male, Diagnosis and Treatment"; October 16, Dr. Abernethy B. Cannon, "Diagnosis and Treatment of Syphilis from the Viewpoint of the General Practitioner"; October 23, Dr. Emily D. Barringer, "Gonorrhea in the Female," and October 30, Dr. Isadore Rosen, "Congenital Syphilis, Diagnosis and Treatment." The lectures are a part of the campaign to inform every resident of the health demonstration area of the risk of venereal infection and to get infected individuals under medical care. The campaign is carried on in cooperation with the New York Department of Health, the New York Tuberculosis and Health Association and the American Social Hygiene Association. The public will be reached by pamphlets, posters, exhibits, lectures and motion pictures. Monthly report blanks are to be sent out to physicians and clinics in the district in October, November and December. The information asked is the number of patients under observation or treatment each month.

Program of Third Graduate Fortnight.—The New York Academy of Medicine's third annual graduate fortnight, to be held October 20-31, will feature "Medical and Surgical Aspects of Acute Bacterial Infections." The speakers, among others, October 20 will be Drs. Frank Billings, Chicago, on "Focal Infection as the Cause of General Disease"; Charles F. Martin, Montreal, Canada, "Continued Education of the Practitioner"; October 21, Fenwick Beekman, "Acute Hematogenous Osteomyelitis"; Joseph F. McCarthy, New York, "Acute Infections of the Urogenital Tract"; October 22, John Edmund Mackenty, "Infections Arising from Tonsils and Sinuses"; Isidore Friesner, "Infections of the Middle Ear (Acute Systemic Infections from the Ear)"; Henry Sage Dunning, "Acute Infections of the Face and Oral Cavity"; October 23, Frederic W. Bancroft, "Operative Risks from Infection"; Eugene H. Pool, "Appendicitis"; Walton Martin, "Bacteriemia"; October 24, William L. Keller, Washington, D. C., "Complications Incident to Delayed Diagnosis in Suppuration of the Lung and Pleura"; Allen O. Whipple, "Acute Infections of the Gallbladder and Biliary Tract"; October 27, George W. Kosmak, "Introductory Remarks on the General Subject of Puerperal Mortality and Its Reduction"; John Whitridge Williams, Baltimore, "Clinical and Pathologic Notes on Puerperal Infection"; John Osborn Polak, Brooklyn, "Puerperal Infections and Their Present Therapy"; October 28, Franz d'Herelle, New Haven Conn. "Bacteriophage as a Treatment in Acute Medical and Surgical Infections"; Frank L. Meleney, "Infections of the Skin and Subcutaneous Tissue-Including Infections of the Fingers and Hand"; Rufus I. Cole, "Acute Pulmonary Infections"; October 29, William H. Park, "Serum Therapy"; October 30, Ernest E. Irons, Chicago, "Facts and Fancies Concerning Vaccines and Non-Specific Therapy"; Homer Smith, "Rheumatic Fever"; October 31, Emanuel Libman, "Acute and Subacute Bacterial Endocarditis," and William W. Herrick, "Meningococcus Infections, Including Meningitis." Dr. Hans Zinsser, Boston, will deliver the Carpenter Lecture, October 29, on "Immunity—General and Local."

NORTH DAKOTA

Society News.—The Cass County staff of district physicians, members of the county board of health and the county public health nurses, held a conference, September 6, as guests of Dr. Albert M. Limburg, county superintendent of health. Addresses were made, among others, by Drs. John B. James, Page, on "Cooperation in Community Interests"; Harry J. Gowenlock, Gardner, "The Public Health Nurse," and Edward H. Richter, Hunter, "The Dental Care of School Children." John C. Pollock, Cass County state's attorney, spoke on "Promotion of Health—Legal Aspects."

OHIO

Milk Examined for B. Abortus. — The health commissioner of Clinton County and the city of Wilmington is making a drive for the elimination and prevention of undulant fever. Several cases have been found. Advertisements are run in the press stating that "any person in Clinton County, Ohio, who retails raw milk from cows that have not been tested for contagious abortion will be prosecuted."

Health Commissioners Have a New Duty.—Under the 1929 Ohio general election law, which became effective, Jan. 1, 1930, the health commissioner of a registration city is required to make monthly reports to his board of elections of the names and residence addresses of all persons, over 21 years of age, who have died within the city during the month, for elimination by the board from the registration list. The provision of law follows:

Sec. 4785-46. Notices of deaths and convictions. The chief health officer of each registration city shall file with the board, at least once each month, the names and residence addresses of all persons, over twenty-one years of age, who have died within such city during the month, and the board shall cause all such names as appear upon the registration lists to be removed therefrom. . . .

The secretary of state, as head of the state's election machinery, has prepared a legal form for submitting these reports, known as "Form No. 248; Prescribed by the Secretary of State." It may be obtained by health commissioners on request to their boards of elections.

PENNSYLVANIA

Philadelphia

Society News.—The Philadelphia County Medical Society was addressed, September 24, by the retired president, Dr. John A. McGlinn, on "Responsibility of Organized Medicine to Combat the Evils That Threaten Scientific Medicine." The scientific program of the society, October 8, consisted of a symposium on blood diseases.——The new college building of the Woman's Medical College of Pennsylvania was formally opened, September 24; among others, Dr. Donald Guthrie, Sayre, delivered an address on "The Modern Medical Graduate —Ambassador of Health."

Institute for Mental Hygiene.—The Pennsylvania Hospital has announced the opening of its new Institute for Mental Hygiene and requests cooperation in finding a new type of medical patient and in finding a fair rate of charge for patients of moderate means. The clinic is planned for patients who will meet the physician more than half way in recognizing that they need help for fatigue cases, fears, maladjustments, and difficulties with getting on with other people or at their work. Mental factors as well as physical will be sought out and treated. Classes in occupational and physical therapy, music and recreation can be used by outpatients or by the patients of any member of the county medical society who wishes to make arrangements for them with the occupational or physical director. Children will be received in the outpatient department and in the Franklin School for problem children. The institute is not licensed and cannot receive any committed patients. It will be greatly interested in toxic mental disturbances and in problems concerning general convalescence. An experiment in medical economics is planned.

RHODE ISLAND

Society News.—The Providence Medical Association was addressed, June 2, by Drs. Frank W. Dimmitt, Jr., on "Some Recent Advances in Otolaryngology," and James L. Gamble, Brookline, Mass., "Pathogenesis of Acidosis and Alkalosis."

SOUTH CAROLINA

Society News.—The annual meeting of the Seventh District Medical Association, September 11, at Kingstree, was addressed, among others, by Drs. Hal M. Davison, Atlanta, Ga., on "Neurosis in Internal Medicine"; Lester A. Wilson, Charleston, "Antepartum Hemorrhage"; Edwin P. Alyea, Durham, N. C., "Invention and Application of Uroselectan," and Charles J. Lemmon, Sumter, "Reconstructed Fractures of the Forearm."——The Greenville County Medical Society was addressed, August 4, by Drs. Charles P. Corn, Greenville, who talked on "Modern Conception of Dermatology and Syphilology."——The Spartanburg County Medical Society was addressed, August 25, by Dr. Edgar A. Hines, Jr., Seneca, on sprue, with report of a case; Dr. Sam H. Ross, Jr., Blaney, reported a case of gangrene of the colon and terminal ileum caused by an unknown bacillus very similar to the dysentery bacillus.——Dr. Harold L. Amoss, Durham, N. C., addressed the Columbia Medical Society, September 8, on "Unusual Complications of Brucella Infection," and Dr. Foster M. Routh, "Common Sense in Allergy."

VIRGINIA

Society News.—The Clinch Valley Medical Society, at its annual fall meeting, September 20, at Norton, was addressed by Drs. Manfred Call, Richmond, on medicine; Harry H. Ware, Jr., obstetrics; St. George T. Grinnan, diseases of children; Charles R. Robins, surgery; Ennion G. Williams, state health commissioner, health problems, and James Allison Hodges, clinical education.

WASHINGTON

Society News.—The tenth annual convention of the Public Health League of Washington at Mount Baker Lodge, September 2, was addressed by Dr. Horace J. Whitacre, Tacoma, on "Economics in the League," in which he brought up the problems which confront the medical profession and the legislative measures pertaining to health that are anticipated to be introduced at the coming legislative session.——The economic and specialty section of the King County Medical Society was addressed, September 29, by Drs. Ivan M. Woolley, Portland, Ore., on "Use of Lipiodol in X-Ray Diagnosis of the Accessory Sinuses," and Harold E. Nichols, Seattle, "X-Ray Diagnosis of Bone Tumors."

WEST VIRGINIA

Society News. — Dr. Frank C. Hammond, Philadelphia, delivered an address on "Genital Bleeding" at the Davis Memorial Hospital, Elkins, September 9.——The Harrison County Medical Society was addressed at Clarksburg, September 4, by Dr. Chester R. Ogden on "European Clinics."

WISCONSIN

Personal.—Dr. Lenwood M. Keene, former physician on the Lac du Flambeau Indian reservation, has been transferred to the Pawnee, Oklahoma, reservation.—— Dr. Francis B. McMahon, Milwaukee, won the president's cup at the annual golf tournament, September 13, held during the session of the State Medical Society of Wisconsin.

University News. — Drs. Herman C. Schumm, Jr., and Walter P. Blount, Milwaukee, have been appointed to the orthopedic surgery staff of Marquette University School of Medicine. Dr. Schumm will be associate clinical professor and director of orthopedic surgery at the Milwaukee County Hospital and the Milwaukee Children's Hospital. Dr. Blount will be clinical instructor in orthopedic surgery at the medical school.

CANADA

Society News. — The seventh annual convention of the Ontario Hospital Association was addressed at Toronto, October 1-3, among others, by Drs. Clarence B. Farrar, Toronto, and Bernard T. McGhie, Orillia, on "Relation of the Mental to the General Hospital; Walter F. Langrill, Hamilton, and Ward A. W. Woolner, Ayr, hospital medical organization, and William J. Dobbie, Weston, "The Financial Responsibility for Schools for Nurses."

Tuberculosis Scholarship Tour.—Fifty-four physicians made up the British scholarship tour of the British tuberculosis sanatoriums of the Dominion and the United States in connection with the recent meeting of the British Medical Association at Winnipeg. The party was headed by Dr. Ernest Ward of Devonshire, the honorary secretary of the Joint Tuberculosis Council of Britain which organization coordinates all the tuberculosis work in England, and included, among others, Drs. John Rennie, medical officer of health of Sheffield; G. B. Price, tuberculosis specialist of the British Ministry of Health; D. A. Powell, president of the Welsh Medical Association, tuberculosis officers, consulting physicians and bacteriologists, each of whom was assigned a special branch of the subject for study to be written up on his return to England.

Opening of the Banting Institute.—Ceremonies in connection with the opening of the new $800,000 Banting Institute of the University of Toronto were held, September 16, with Lord Moynihan, president of the Royal College of Surgeons of England, presiding. The cost of the building was contributed by the provincial government, the university and the Banting Research Foundation, which raised funds by popular subscription. It is estimated that when fully equipped the institute will cost over $1,000,000. The building replaces the old pathologic building of the university and will combine its activities with the general hospital. It commemorates not alone the growth of medical science and the advancement of the

Toronto University but also the name of the Toronto graduate responsible for the discovery of insulin, Dr. Frederick Grant Banting. A tunnel under the roadway at College Street connects the hospital and the institute. The sub-basement of the institute contains necropsy and pathologic museum rooms; the first floor is devoted to laboratories in surgical and neurologic pathology and bacteriology, and has a theater seating 250 and a pathologic library. The third floor is for classes. The architectual beauty is best noted in the large library on the third floor with its gray stucco ceiling and parquet floor. Over the fireplace in this room is a portrait of Lord Lister presented to the institute by Dr. Edmund St. George Baldwin and the late Dr. F. LeM. Grasett who, years ago, was associated with the discoverer of antiseptic surgery at the Glasgow Royal Infirmary. Dr. Banting occupies the top and fifth floors of the building, together with seventeen physicians and scientists who collaborate in research. The department has for the first time full-time professors. Other floors contain laboratories for research and pathologic study, and the roof is occupied by pens for experimental animals. The provincial government has a pathologic laboratory in the building where its own staff will analyze specimens pertaining to the public

The Banting Institute.

health of the province. Coincident with the opening of the Banting Institute, a rearrangement of the various departments will be effected. The Institute of Radiotherapy will be enlarged at an investment of nearly $150,000, for the study of the effect of radium, roentgen rays and allied agents. An emanation plant will be incorporated for which work 500 mg. of radium has been set aside, and emanations will be made available for distribution to any reasonable distance. The essential purpose of the institute is to aid research and to enable students to experiment and evolve theories of their own. At the opening ceremonies, the degree of doctor of laws was conferred on Lord Moynihan; Mr. C. S. Blackwell, chairman, board of trustees, Toronto General Hospital, and Dr. Thomas S. Cullen of Johns Hopkins University School of Medicine, and the degree of doctor of science on Dr. Davidson D. Black of the University of Peiping on account of his anthropologic finds in Tibet, and Ambrose T. Shanton of the English government service.

GENERAL

Society News.—Dr. Alexander B. Moore, Washington, D. C., was installed as president of the American Roentgen Ray Society at its annual meeting, September 25; Dr. Leopold Jaches, New York, was made president-elect and Dr. John T. Murphy, Toledo, Ohio, secretary, reelected. The next annual meeting of the society will be held at Atlantic City in September.

Report of United Fruit Company.—During 1929 the United Fruit Company provided medical treatment for 68,965 employees and 102,256 nonemployees. It maintains hospitals and dispensaries at Port Limon, Costa Rica; Almirante, Panama; Quirigua, Guatemala; Tela, Honduras; Puerto Castilla, Honduras; Preston and Banes, Cuba; Puerto Armuelles, Panama; Santa Marta, Sevilla and Aracataca, Colombia, and dispensing service in the ports of New York, Boston and New Orleans. Malaria is of the greatest economic importance in the tropics because of its prevalence, chronicity and debilitating effects on the population. Since 1926, when an intensive campaign for malaria control was inaugurated, the greatest improvement has been noted in children. The report covers sanitation in the tropics, steamship sanitation and the work done at the snake farm at Lancetilla, Tela, Honduras, by the Museum of Comparative Zoology, Harvard University, the United Fruit Company and the Mulford Biological Laboratories. Snakes are collected and antivenin produced under the direction of the Antivenin Institute of America. In a population of 150,000 people in the West Indies and Central America, the annual rate of snake bites was 23 and the mortality 1.06 per hundred thousand. Among the diseases treated by the medical department of the company were 7 cases of leprosy; 106 cases of typhoid with 18 deaths; 325 cases of amebic dysentery with 6 deaths, and 566 cases of hookworm disease with no deaths.

Bequests and Donations.—The following bequests and donations have recently been announced:

Hospital and House of Rest for Consumptives at Sprain Ridge, Yonkers, N. Y., $12,464 by the will of the late William H. Erskine.

United Israel-Zion Hospital, Brooklyn, $10,000; Beth Israel and Mount Sinai hospitals, $7,500 each, and Jewish Maternity Hospital, New York, $2,500, by the will of the late Morris Meiselman.

Mansfield General Hospital, Mansfield, Ohio, $5,000, from Edward W. Loughridge in memory of his parents.

The Roosevelt Hospital, $1,000,000; Manhattan Eye, Ear and Throat Hospital, New York, $100,000; and St. John's Riverside Hospital, Yonkers, N. Y., $50,000, through the will of Lloyd W. Seaman.

St. Vincent's Hospital, New York, $22,500, by the will of Mrs. Alice Harrington Santher.

The Elyria Memorial Hospital, Elyria, Ohio, $45,000, through the will of Mrs. Carrie A. L. Patch. The hospital is to receive the income from the trust fund, and it will be used for the Gates Hospital for Crippled Children.

Presbyterian and Pennsylvania hospitals, Philadelphia, will each receive one third of an estate of $200,000, through the will of William Snodgrass.

The Methodist Episcopal Hospital, Brooklyn, $10,000, from the estate of Simon J. Harding.

The Foote Hospital, Jackson, Mich., a second gift of $50,000 by Capt. William Sparks.

Hospital of the University of Pennsylvania and Pennsylvania Hospital, Philadelphia, each $150,000 by the will of the late Mrs. Elizabeth B. Ketterlinus. The bequest to the University Hospital is to be held in trust and the proceeds devoted to the John G. Clarke fund for the benefit of Ward K. The legacy to the Pennsylvania Hospital is also left in trust.

FOREIGN

University News.—At the Encaenia, held June 25, at the University of Oxford, the honorary degree of D.Sc. was conferred on Sir Arthur Keith, conservator of the Museum of the Royal College of Surgeons of England.

Personal.—Dr. Sigmund Freud, Vienna, was recently awarded the Goethe prize by the German city of Frankfurt, in recognition of researches in psychoanalysis. It is said that Goethe's essay on Nature awakened Freud's desire to be a physician.——Dr. Karl Sudhoff, formerly professor of history at Leipzig, has been elected a foreign member of the Hungarian Academy of Sciences at Budapest.——The William Mackenzie medal for "original contributions to ophthalmology of outstanding merit" has been awarded to Prof. J. van der Hoeve, Leyden, Holland. He delivered an address at the Glasgow Eye Infirmary, October 3, on "Ophthalmology in Its Relation to the Other Branches of Medical Science."

Government Services

Army Personals

Major Daniel J. Hayes, Letterman General Hospital, Presidio of San Francisco, Calif., for the convenience of the government, proceeded to his home about September 30 to await retirement; Major Martillus L. Todd, on the expiration of his present leave of absence, for the convenience of the government will proceed to his home and await retirement; Lieut. Col. Mathew A. Reasoner will report to Medical Field Service School, Carlisle Barracks, for the purpose of pursuing advanced course of instruction, on completion of which he will proceed to St. Louis and assume command of the St. Louis medical depot; Major William J. Burdell, having been found by an army retiring board incapacitated for active service on account of disability incident thereto, and such finding having been approved by the President, the retirement of Major Burdell from active service on September 30 is announced; Lieut. Col. Daniel P. Card, assigned to duty at Letterman General Hospital, San Francisco; Capt. John H. Dawson, assigned to duty at Fort Sill, Oklahoma; Capt. Horace J. Caterer, Fitzsimons General Hospital, Denver, for the convenience of the government, proceeded to his home about September 30 to await retirement.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 20, 1930.

The Improvement of the Race

In an address before the ninth annual meeting of the International Federation of Eugenic organizations, Sir Arthur Keith considered the effect of modern civilization on man. Was the generation growing up as fit in body and mind as the one it would replace? Was there evidence of deterioration? If civilization was tending to exchange ability for mediocrity, measures would have to be discovered to alter this. He hoped that the forces which had raised man to his present status would raise him still higher. He approached eugenics with the eye of the prehistorian. There were only two chapters in man's evolutionary history. The first began with emergence from the Pithecanthropoid stage and ended with the full-blown types of humanity such as were found in Europe and South Africa toward the end of the last ice age. In that phase, progress was effected amid natural surroundings. Then, 10,000 years ago, man's evolution proceeded under new conditions—those seen in cities, conditions which were no longer made by nature but by man. In the first or natural stage the production of the race was everything; in the second the production of the race was sacrificed to the accumulation of wealth. In both phases humanity walked toward its fate with eyes closed. If eugenists had their way a new phase—a conscious phase—of evolution would be initiated. If it was found that the way man lived was leading to mental and physical bankruptcy, people could no longer afford to be mere pawns on the chessboard of evolution: they must take a hand at the game. The chief difficulty before eugenists was human nature, which was dominated not by reason but by passion, feeling, emotion, prejudice and instinct. Eugenic reform depended on the extent to which human nature could be rationalized. There were signs that the times were favorable. The public of all countries was more willing to listen to eugenic proposals than at any previous period. The highest dignitaries of the church were now seeking to open a way for the eugenist. They had removed the tabu that surrounded the processes of reproduction. At the meeting they were fortunate in having to welcome Major Leonard Darwin, the Nestor of English eugenics. Seventy years had gone since his father published "The Origin of Species." That book had moved the world toward eugenic reform more than any other.

Mr. C. J. Bond, a surgeon, gave some facts pointing to deterioration of the population. The examination of 2½ million men of military age in 1918 showed that only one third were perfectly healthy and fit. The loss from sickness among insured persons in England and Wales in 1928 amounted to 26½ million weeks. (It should be remembered that a certain amount of this is due to malingering and lax certification.) The first step should be a fuller ascertainment of the real position, a national stock taking of mental and bodily qualities in different social groups. The next step was to cease breeding from inferior stocks and to promote larger families in the superior. Sterilization duly safeguarded, in combination with segregation, must be the method to prevent procreation of the defective, irresponsible and antisocial, who largely composed the subnormal lowest social group.

Leonard Portal Mark: The Physician Who Described Acromegaly in Himself

The death at the age of 75 years of Dr. Leonard Portal Mark removes an heroic figure, who, stricken with acromegaly, bore his sufferings not only with fortitude but with equanimity and turned them to account for the benefit of medical science. Born at Marseilles in 1855, the son of the British consul there, he was educated in France and entered St. Bartholomew's Hospital, London, from which he qualified in 1879. He settled in London as a general practitioner and, possessing artistic talent, also undertook the work of pathologic artist at his hospital. Although he was skilled in the detection of disease in others, the onset of acromegaly was so insidious that he did not recognize it in himself for thirteen years. In his autobiography he wrote: "I suddenly became aware that I was the subject of a peculiar and rare disease. Great was my surprise when I learnt shortly afterward that the fact was well known to my medical friends, who had watched its steady development for fifteen years or more. Each day when I looked into the glass to brush my hair, there was a typical acromegalic literally staring me in the face. Yet I never recognized the fact." The disease ran its usual course with severe headache, but Dr. Mark never repined in the least and turned his misfortune to account for the benefit of medical science. Other physicians before him have described their own maladies. The most illustrious is Sydenham, "the English Hippocrates," who used his own experience as a basis for his classic description of gout; but no such minute account as was given by Mark of his own case has ever been published by a physician. Moreover, it would be impossible to surpass the philosophical detachment with which he viewed his malady; he described it exactly as if it had been an interesting case in another person. He carefully recorded his symptoms and had photographs taken from time to time and finally left directions that his skull and brain should be examined by a competent pathologist. As long as was possible he did his daily work without any repining. His first book, "Acromegaly: A Personal Experience," appeared in 1912 and fifteen years later a supplement entitled "The Apologia of an Acromegalic." He recorded the changes that took place in his eyes, his skull and his brain and obtained written opinions from eminent authorities on various points in his case. He minutely recorded his subjective symptoms—the headache, lethargy, tinnitus and feelings of depression. It is noteworthy that the disease did not seem to have in the least shortened his life. In a tribute in the *British Medical Journal* Dr. F. R. B. Atkinson writes: "Always interested in his malady, he was ever ready to hear anything concerning it found in the literature. Ever suffering great discomfort during the fifty years of his illness, often in extreme pain, he never gave in. The last time I saw him he was deaf, nearly blind, could hardly walk and was suffering from various complications connected with his disease. His last words uttered to me not long since were 'I have much to be thankful for.' The medical profession is honored by such a one."

Arsenic in "Cough Drops"

A curious outbreak of arsenical poisoning has been reported from Stoke-on-Trent. A physician reported to the health officer that twelve children had been taken ill after eating certain sweets ("cough drops"), which had all been purchased in one shop. The symptoms were the same in all the cases—gastric irritation followed by vomiting, which in the mildest cases lasted six or seven hours. Analysis of the sweets revealed large quantities of arsenic. Then a similar outbreak due to the same kind of sweets occurred in another district. The premises of the manufacturer were visited by the health authorities. The ingredients of the sweets were found to be white sugar, brown sugar, dextrose and flavoring of camphorated tincture of opium and peppermint and other volatile oils. But it was also found that a dusting powder had been used, which proved to be pure arsenic trioxide. In several analyses of the sweets the quantities of arsenic varied from 77 to 150 grains of arsenic to the pound, and some of the sweets contained as much as two-thirds grain in each one. The large quantities of arsenic used as dusting powder in the manufac-

ture had permeated almost all the ingredients of the works and arsenic was found in considerable quantities in treacle and other substances. The source of the dusting powder seems to have been a box of arsenic trioxide left by a previous tenant who made enamel letters for shop windows. How it came to be used as a dusting powder is not explained. It is fortunate that in spite of the heavy contamination with arsenic there were no deaths. The manufacturer and his son suffered from arsenical irritation of the skin as well as from pains and diarrhea due to eating food with hands contaminated in the making of the sweets.

Birth Rate Lowest on Record

The registrar-general's medical tables for 1929 have just been issued. The birth rate was 16.3 per thousand living at all ages, once again the lowest recorded since the establishment of civil registration in this country, the lowest previous rates being 16.6 for 1927 and 16.7 for 1928. The death rate was 13.4 against 11.7 in the previous year; it is the highest since 1919, which had a figure of 14 but, because of the war, was based on the deaths of civilians alone. The increase in the death rate was due almost entirely to the high mortality from respiratory and circulatory diseases and the influenza epidemic during the abnormally severe weather of February and March. The deaths of infants under 1 year were 74 per thousand live births, or 9 above those of 1928. Here again the excess was due to the high mortality of the March quarter. Excepting the pandemic of 1918-1919, the epidemic of influenza was the most severe in this country since the disease reappeared in 1890-1891, the mortality being 734 per million living, against 196 in 1928. Deaths from accidents due to mechanical vehicles on the roads increased from 4,492 in 1927 to 5,251 in 1928 and 5,799 in 1929.

Another Martyr to the X-Rays

The roll of martyrs to the ignorance of the need of protection against the x-rays in the earlier period of their use unfortunately is not completed. Mr. E. H. Harnack, who is now 65 years of age, was one of the pioneers of the use of the x-rays. He is in the London Hospital awaiting the removal of the remaining portion of his right hand. For more than twenty-five years he has served the hospital, first as a photographer and then as radiographer in the earlier experimental work with the x-rays, in association with Dr. Sequeira, the former dermatologist to the hospital. As a result, he contracted roentgen cancer. Already he has lost the whole of his left hand and the fingers of the right. Some time ago the right thumb became affected and it is now necessary to amputate at the wrist. He has undergone some dozen operations on his right hand. When he became incapacitated for further work the governors of the hospital granted him a pension and he also received one from the Carnegie trustees. From the new x-ray plant of the hospital no one has ever suffered. Twelve of the pioneers in the use of x-rays in this country have died from malignant disease following burns due to their occupation and few have escaped without amputations.

Professor Bequeathes His Body to Hospital

Prof. H. H. Turner, the eminent astronomer, Savilian professor of astronomy at Oxford, who died recently at Stockholm, requested that his body should be used for scientific purposes and left it to the Stockholm Hospital. He also desired that no ceremony, civil or religious, should be used in connection with his burial. Swedish law, however, directs that a ceremony of some kind must follow death. Therefore the hospital could not accept the bequest. Stockholm communicated with the London Hospital, which agreed to accept the professor's body for scientific use. Enclosed in a leaden coffin, it has arrived at the hospital.

PARIS

(From Our Regular Correspondent)

Sept. 17, 1930.

The Evolution of Spirochetes

Before the Société de biologie, Levaditi and Li Yuang Po recently presented a communication on the evolutional cycle of *Spirochaeta pallida, Spirochaeta pertenuis* and *Spirochaeta cuniculi.* These spirochetes have a cycle in which one of the phases is represented by parasites arranged in more or less compact chains and circular masses. This stage precedes that of the transformation into nearly ultramicroscopic granules. Various phases of this evolutional cycle may be found in the lesions of the skin and the mucosa, and in the brain of patients with dementia paralytica. Such brains, stained by the Dieterle method (silver impregnation), show in places spirochetes in the evolutional stage, in chains and compact masses, and also the process of transformation into ultramicroscopic granules.

The Bandage Sign

P. Emile Weil has brought up again a study of the *signe du lacet,* or the bandage sign, which consists in the appearance, in certain subjects, of fine petechiae when a moderately tight bandage is applied to the arm, near the elbow, for a period of six minutes. This sign, previously described by Weil and Chalier, and by Frugeni in severe purpura, is observed in hemogenia, in hemophilia-hemogenia and in the hemorrhagic states occurring in liver patients. In a communication to the Société des médecins des hôpitaux de Paris, Weil states that the sign occurs in primary splenomegalia in liver patients, plethoric subjects, persons who are carriers of congenital angiomas, and sometimes also in persons with varicose veins. The author points out that the sign enables one to detect the fragility of the capillaries, and that it throws light on the functional condition of the liver and the spleen, the organs that are in chief control of the tonus, and the formation of the microscopic vascular system.

Lack of Magnesium in the Human Organism

As a result of publications of Professor Delbet and of his widespread propaganda in support of the idea that cancer is due to an insufficiency of magnesia in the body fluids, the magnesia treatment is becoming exceedingly popular, and many persons today are forcing themselves to swallow every morning a lozenge composed of magnesium chloride and magnesium bromide, by way of precaution. The treatment seems to agree with some; they get rid of constipation and find themselves in possession of increased physical and nervous vigor. Delbet has endeavored to discover why civilized peoples today are not so abundantly supplied with magnesium by their food as they formerly were. The alimentary contributions to the magnesium supply of the organism are made chiefly through the salt, the bread and the vegetables. The gray salt of olden times, now abandoned because it is too hygroscopic, contained 1.7 per cent of magnesium chloride and magnesium sulphate, whereas white salt contains only 0.4 per cent of those substances. White flour contains 0.011 per cent of magnesium, whereas the feed reserved for cattle contains from 0.07 to 0.116 per cent. Other animals are thus better off, in this respect, than man. Then, too, the magnesium content of plants varies, depending on the quality of the soil in which they are raised, between 1.32 Gm. and 13.58 Gm. (potatoes). Furthermore, while fertilizers are frequently employed to restore the phosphorus, the calcium and the potassium to the soil deprived of these substances, this is seldom if ever done for magnesium. Here is an oversight that the author wishes to see adjusted, especially in the regions in which cancer abounds. Mr. Lapicque, professor of physiology at the Sorbonne, is not yet fully convinced of the rôle that Delbet ascribes to the lack of magnesium in the production of cancer. But, while he is waiting for this to be proved by the

pathologists, he admits that the present diet of civilized man tends to diminish the magnesium intake. It would be easy, he says, to improve the fertilizers by employing magnesium-containing lime substances. By each harvest of beets (*betteraves*), for example, the soil is deprived of 80 Kg. of magnesium per hectare (about 70 pounds per acre). It is difficult today to induce the general public to renounce the use of fine white flour, which has a low mineral content. As a remedy, Lapique recommends the American practice of dredging certain foods with bran and of eating bran muffins for breakfast.

The Birth Rate of Europeans in French Colonies

In the *Presse médicale*, Dr. Legendre, who has spent many years in the colonies, calls attention to the differences that exist in the number of children to a family, in those regions. The number is high in Indo-China, smaller in western Africa, and greatly reduced in Equatorial Africa. Legendre endeavors to ascertain the causes, which, though complex, may be traced to one fundamental cause. The fecundity is in direct proportion to the material comforts enjoyed by the European colonists rather than to the salubrity of the climate. In Indo-China, in a European population of 9,903, of whom 3,445 are adult men and 2,593 are adult women, there are 148 children to each 100 women. In western Africa, where the number of women is diminished, because the home comforts are fewer, since there are fewer large European towns and more isolated stations, in a population of 15,399, or much greater than that of Indo-China, one finds 9,673 men, 3,517 women and 2,209 children, or 34 women to 100 men, and about 62 children to each 100 women; thus, as in Indo-China, about two children per family. In Equatorial Africa, which is just as salubrious as the colonies mentioned, there are only 2,502 Europeans, or 2,010 men, 389 women and 103 children, which is 19 women to 100 men, and 26 children to 100 women, or not much more than one child to a family. Legendre expresses surprise at this restricted birth rate. It is not due to a lack of opportunities for medical care, for there are, in all these centers, well organized maternity hospitals, competent physicians and capable midwives. He finds only one explanation—namely, in the colonies of Africa, there were, in the beginning of the colonizing period, when the life led was primitive, only men to be found. Many civil and military posts were given only to unmarried men—especially the dangerous posts, for the reason that the government, in case of the death of the civil or military officer, preferred not to pay a pension to a widow and children. But that early stage of civilization has passed. Married men are now admitted to all posts; but many prefer to leave their wives and their children in France, in order that the latter may secure a more thorough education in the *lycées*, and also to avoid changing their domicile so frequently as the colonial administration demands of its officials. Furthermore, the dwellings of the officials are, as a rule, better adapted for a single man than for a family. If larger and better dwellings are erected, Mr. Legendre states, more women will come to the colonies and there will be more children.

Camps for Children

The Association de campements de vacances pour les enfants, which was founded in France, a few years ago, is performing an excellent service. Last year it provided sojourns in fresh-air camps for 4,000 children whose parents did not have the means to give them such outings and who otherwise would have had to remain, during that time, in the less healthful atmosphere of the cities. It has recently been decided to locate some of these camps at mountain health resorts, where the children may have the benefit of the pure air and the wholesome surroundings. Dr. Meillon has established one such camp at Cauterets; Dr. Molinéry another one at Luchon, and the resort of St. Honoré-les-Bains has just created one at the suggestion of Dr. Du Pasquier. The first two are installed in tents, out in the fields; the last mentioned is quartered in a large building ordinarily left vacant during the summer vacation. The children are accompanied by leaders who conduct for their benefit daily hikes through the surrounding country, and who take them also, every morning, to the bath establishment for their daily treatment. It appears as if these camps for children would become general at the various health resorts in France.

Retirement of Prof. H. Hartmann

Professor Hartmann, having reached the age limit, is resigning his professorial chair of clinical surgery at the Faculté de médecine de Paris, and also his service in the Hôpital de l'Hôtel-Dieu, where Professor Cunéo has succeeded him.

RIO DE JANEIRO

(From Our Regular Correspondent)

Sept. 15, 1930.

Palmar Mycotic Keratosis

Dr. Olympio da Fonseca, Jr., recently delivered a lecture at the Academia Nacional de Medicina on palmar mycotic keratosis, on which subject he has made extensive studies in collaboration with Dr. A. Ferreira da Rosa. The speaker said that the disease was observed first in Brazil in 1891 by Dr. Alexandre Cerqueira, a professor at the Faculty of Medicine of Bahia. Aldo Castellani, after interesting studies on the subject, which he began at Ceylon in 1905, succeeded in isolating the etiologic agent, which is a type of imperfect fungus of the genus *Cladosporium*. The disease begins as many small dots, either isolated or in small groups, in one or both hands, or sometimes in other parts of the body. The small dots increase in number and in size after several months of evolution, and when the lesion has completely developed they become confluent, forming one lesion in the form of patches of an irregular contour. As a rule these patches extend several centimeters and have slightly elevated borders. The surface of the patches vary from light brown to an almost black coloration, which may be either uniform in the entire lesion or show some spots of more or less intense hue. The surface of the dermatic lesion is smooth and it has an almost imperceptible desquamation. Mycotic keratosis is not associated with pruritus, inflammatory phenomena or erythema. When erythema is observed as a complication, it should be considered as caused by some other influence. The symptoms of the disease are uniform. As a rule, if treatment is discontinued as soon as an apparent cure is obtained, the disease reappears. At examination the fungi appear under the form of septated or ramified mycelian filaments, either curvilinear or rectilinear. The mycelian filaments present a hyaline or slightly chestnut color and they are either isolated or reunited in faggots. In the scales, isolated and short elements, either unicellular or pluricellular which correspond to real thallospores, are found.

Apophyseal Incomplete Fractures

Dr. A. Amorin read a paper before the Sociedad de Medicina y Cirugía on the frequency of isolated apophyseal incomplete fractures. The speaker stated that fractures of the larger and of the smaller tubercles of the humerus, of the epitrochlea, of the epicondyle and of the styloid process of the ulna are frequent though they have been considered rare. The speaker reported two cases of fractures of the larger tubercle of the humerus, four of the apophysis of the distal end of the humerus and some other fractures of the styloid process of the ulna. These fractures were observed without association with any trauma of the respective joints. The speaker stated that these fractures are considered as being rare not because they are so but because they are often overlooked or are considered as

simple dislocations or sprains. Incomplete or apophyseal fractures frequently are erronously diagnosed as traumatic arthritis. Though the last mentioned condition may be present in rare instances, as a rule the fracture is the factor which determined painful manifestations, hydrarthrosis and local irritation of the synovial membrane, caused by the presence of a lost fragment which acts as an intra-articular loose body. The author emphasized the necessity of roentgen examination in every case of articular trauma, the more frequent use of which should indicate the real cause of pseudo-arthritis. The speaker gave a brief review of some cases and detailed the harmful sequels that may follow a mistaken diagnosis.

Epinephrine in Urethral Applications

Dr. E. Lins read a paper before the Sociedade de Medicina e Cirugia on the good results obtained by the use of epinephrine hydrochloride for urethral application to overcome the difficulties offered to the passage of sounds for catheterization in cases of acute retention of urine caused by urethral stenosis. As these conditions are caused in part by the edema present and in part by spasm, the application of a 1:1,000 solution of epinephrine to the urethra is useful. In several cases Dr. Lins obtained good results by means of the application of epinephrine to facilitate the passage of a filiform catheter, thus permitting the use of some other therapeutic administrations.

CAPE TOWN

(From Our Regular Correspondent)

Aug. 29, 1930.

The Medical Congress

The third annual scientific meeting of the Medical Association of South Africa was held at Durban this year at the end of July. This year's session was held under the new rules, which were on trial, and the results of the experiment are interesting. It has always been felt that sectional meetings, especially in a country like South Africa where specialization is still in its infancy, precluded many from taking full advantage of the congress. What was wanted was some arrangement whereby men interested in various specialties could join together to discuss subjects of common interest. This arrangement has been found in the "plenary meetings," at which all sections were represented and for which subjects of common interest were chosen. Unfortunately the choice of the selection committee was not always good, and the first plenary meeting was occupied largely with the discussion of a matter of political rather than professional interest.

MEDICAL EDUCATION OF THE BANTU NATIVE

This was the education of the native to help in the medical services of the native territories. The medical service in these districts beyond the Kei, which are populated almost entirely by natives and where the small white settler communities hardly hold little attraction for the white practitioner, is not what it should be. Infant mortality is high among native children and the incidence of disease among them is great. Medical aid and assistance are rendered by mission doctors or by district surgeons, but such aid and assistance are quite inadequate for the large extent of area and the dense native population. The proposal has therefore been made that special physicians should be allocated to these native areas and that we should follow the lead of the French in West Africa, who have created an auxiliary medical service recruited from intelligent natives who are given a modified medical course and allowed to practice as auxiliary doctors. A somewhat similar policy has been followed in parts of the Dutch East Indies, particularly in Timor and Bali, where the "dokters djavi," educated at the School of Hygiene at Buitenzorg, act as assistant district surgeons. Such "auxiliars" are excused the lengthy preliminary training in the ancillary sciences; they are given a modified course in anatomy and physiology, and special attention is paid to teaching them practical medicine and surgery. Those in favor of this course being followed here point out that there is a dearth of European physicians, who cannot be induced to practice in the purely native areas; that native medical students cannot be educated locally to become registerable simply because public opinion does not permit such students working in hospitals where there are white patients and white nurses, and that if such native students are sent overseas they will probably become "detribalized." The protagonists of these proposals are largely those who are connected with native missions and who cannot make up their minds whether the native must be treated like a child or be allowed to work out his own salvation. The general opinion of the profession is against these proposals. The discussion at the congress plainly indicated that there was opposition to the views put forward, based on the denial of the arguments that it is necessary that there should be an inferior qualification for native practitioners, but perhaps much more on the undesirability of adding to the barriers that already separate the educated native from the educated European. Any native can enter as a medical student at one of our medical schools; as a matter of fact, natives have so entered and there is no proof whatever that their fellow students have received them unfavorably. The practical difficulty is not in the medical schools but in the hospitals, which are not under the control of the faculty and are governed largely by lay committees which will not permit, even if public opinion allowed them, a native senior student to attend white patients. The result of this is that native medical students leave in their third year and continue their clinical studies overseas, usually in Scotland. At present there are about a dozen native practitioners in South Africa, and their relations with their white colleagues are usually amicable, as their skill and professional knowledge are evidenced by their degrees. If they had "auxiliary qualification" such as they would obtain under the proposed scheme and had received their training in a native hospital, their status would be much lower, and they would have far less influence among their fellow natives than they have at present.

A government commission considered this matter some years ago and came to the conclusion that it could not recommend an "auxiliary scheme" of training for native medical students under special grants from the government. It advocated, rather, that promising native students should be given "medical scholarships" to enable them to obtain their medical training abroad. The missionaries are strongly against this scheme, as it removes the native student from their influence. So far as one can judge, these who favor the "auxiliary scheme" of training imagine that the native auxiliary doctors will confine their work to natives and will be wholly subservient to "Christian" influences while at the same time content to submit to tribal convention. One cannot understand, otherwise, why such stress is laid on the danger of "detribalizing" the native student who goes overseas for his diploma. To the logical mind it is unthinkable that a medical man, no matter where he is educated, can be anything else but "detribalized." The discussion on this matter threatened to become acrimonious at the congress but was dexterously sidetracked by a resolution to the effect that the matter should be left in the hands of the federal council of the association for consideration and report.

PROFESSIONAL PAPERS

Another subject for plenary discussion was "The Treatment of Parasitic Diseases," in which Dr. Annie Porter and Dr. Orenstein read opening papers. The discussion was instructive and lively, as most of those present had had experience with malaria, bilharzia, the dysenteries, lambliasis and giardiasis. In the surgical section a communication was made by Dr. Macgregor of Johannesburg, who has successfully treated cases of megacolon in children by excision of the sympathetic ganglions.

In the medical section Dr. Pringle opened the discussion on tuberculosis, from which it appeared that it is generally felt that the disease is much more widespread in this country than is supposed. Other papers were on the ketogenic diet in epilepsy, on the intra vitam diagnosis of pancreatic calculi, and on hyperpiesis. The congress was opened by the governor general, who in his address referred to the traditions of the profession and to the need for research work.

A Gold Medalist

The Medical Association of South Africa has awarded its first gold medal, for meritorious services rendered to the profession in South Africa, to Dr. William Darley-Hartley. He was born at Sheffield in 1854 and graduated from Guy's Hospital, London, in January, 1878. He is one of the few senior medical men in South Africa whose professional career dates back prior to the eighties. He came to South Africa as a military surgeon and took part in the Kaffir and Zulu wars of 1878-1879, being attached to the twenty-fourth regiment, the South Wales Borderers, a regiment which was almost decimated at the battle of Isanhlwana. In 1879 he started private practice at East London. After the Boer war he went to Europe and obtained his degrees of M.D. and M.R.C.P. London. On his return he devoted himself to medical politics, founded the *South African Medical Record,* now incorported with the *Medical Journal of South Africa,* and remained editor of this journal until his retirement in 1928, when he was elected emeritus editor and life honorary vice president of the Cape Western branch of the association. He has been a member of the medical council since 1904 and president of the council for some time. He has acted for many well known papers as war and local correspondent, besides being a frequent contributor to literary journals. The award of the gold medal to a man who has identified himself so closely with the interests of the profession and who is so generally popular and respected meets with unanimous approval.

Antityphoid Serum

Typhoid is one of our most prevalent diseases, and although its incidence has been much lowered by preventive inoculation and by Besredka's oral immunization method, it still occasions many deaths and leads to much economic wastage. For many years, experiments have been made in the direction of discovering a therapeutic antityphoid serum. Dr. Grasset, formerly of the Pasteur Institute and now medical serologist of the South Africa Institute for Medical Research at Johannesburg, has, in collaboration with Dr. Gory, perfected an antityphoid serum which seems to be efficacious and of practical value. Prophylactic vaccination must remain the best method of control of the disease, but the serum is of great usefulness in areas where such control, for local and other reasons, is difficult or impracticable. Especially in the native territories, where the disease is frequent, the serum is likely to be much used. It is the result of prolonged investigation of the antigenic relationship between European strains of *Bacillus typhosus* and strains of South African origin, and is used in injections of 40 cc. with intervals of twenty-four hours in between, three or four injections being usually sufficient to cause the temperature to drop. Drs. Grasset and Gory have published the results of their antityphoid serum therapy in the *Comptes rendus des séances de la Société de biologie* and now Dr. Grasset has published the results of his clinical trials with the South African serum. He reports that the use of the serum is followed by a rapid and consistently maintained improvement in the general condition and by disintoxication, with the disappearance of nervous and ataxic symptoms. The earlier the treatment is given in the course of the typhoid infection, the more rapid and marked are the results obtained. In the mixed and secondary infections, especially those in which there is pulmonary involvement, the serum seems to act especially well.

BUCHAREST

(From Our Regular Correspondent)

Sept. 16, 1930.

The "Interferential" Theory of Treatment of Disease

In an article in the *Wiener medizinische Wochenschrift* Dr. Mór Turnovszky of Targul Mures, Transylvania, Roumania, brought up the priority of the theory of interferential treatment of disease, a term which originated with him twenty-five years ago, when he published his observations in the same periodical, describing some concrete cases in which an incidental disease affecting the organism cured another already existing disease. He reported cases from his own practice. In one of these an epileptic patient was cured by an attack of typhoid. Another patient similarly got rid of chorea. Therefore a disease can be cured by means of another disease. He called this phenomenon an interference and suggested that other diseases could be cured by interferential diseases. His theory became the target of many attacks. In his book "The Cure of Epilepsy," Professor Sarbo called the interferential theory a true fantasmagoria. With the advent of the malaria therapy of dementia paralytica, as introduced by Professor Wagner-Jauregg in Vienna, the interferential method was rehabilitated, and Turnovszky found the time ripe to call the attention of the medical world to the fact that his interferential method is a reality. He does not claim priority over Wagner-Jauregg even in regard of treating a disease with another one, because similar experiments were made many decades ago. But he claims priority in regard to the denomination "interferential" treatment, an expression that he took from physics. It is taught that sound waves and electrical waves when crossing each other have various effects that baffle other waves. This phenomenon in physics is called interference, and he applied it to therapy in this sense.

Pistons That Stick in Syringes

Dr. Stephan Martonffy of Szilágysomlyó recommends a method of loosening pistons that have stuck in record syringes.

In most cases the sticking of the piston is caused by the drying up of solutions containing albumin. It is a waste of time to boil the syringe or to warm it because boiling coagulates the albumin and it gets still more firm. It is futile also to attempt the use of acid, which coagulates the albumin and at the same time harms the syringe. The only practical method is to apply concentrated alkaline solutions. The alkali albuminate dissolves in the excess of potassium hydroxide and the sticking is stopped. The syringe is hung with cone down, or put in a tumbler, and the part above the piston is filled with a 10 to 20 per cent solution of sodium hydroxide and left for a day or two. The caustic gradually gets filtered into the narrow space between the piston and the glass, and when the first drop of caustic appears on the bottom of the tumbler the piston is released and can be easily pulled. The method is successful also in cases of rust. The application of caustic in the described way is important because thus it reaches most easily the surface that sticks. Immersing the whole syringe in the caustic solution is not practical because in this way the air bubbles that stick in the cone and between the piston and syringe wall prevent the caustic from reaching its destination.

New Bill on the Activity of Druggists and Pharmacists

It is an old complaint of Roumanian pharmacists that drug stores sell both official and nonofficial remedies; the druggists object to pharmacists selling toilet preparations, raw drugs and rubber goods. The druggist profession is not subject to any special schooling; druggists are regarded as simple merchants, and three years' apprenticeship in a drug store qualifies one to become a druggist. The new bill aims at special schooling and training from would-be druggists, and only those in possession

of a certificate issued by the board of pharmacists are to be qualified for opening druggists' shops or acting in them as clerks. The new bill sharply outlines the list of those drugs which druggists are allowed to hold in stock. The draft allows them to sell proprietary medicines that do not contain poisons. It strictly forbids, however, preparation of a prescription. Roumanian druggists are ready to accept the new bill, but they want a paragraph added which forbids barbers to sell toilet preparations, face creams, hair pomades and lotions. The board of pharmacists protested against the insertion of the paragraph enacting that pharmacists should not sell perfumes, cosmetic preparations or rubber goods, and also against the enactment according to which druggists' shops may be open just like the chemists' shops, which may keep open on Sundays, and have to close two hours later than ordinary shops on week days. The government appointed a committee consisting of druggists and pharmacists to study Western conditions on the spot and to formulate the final draft of the bill after having the report of the committee.

BERLIN

(From Our Regular Correspondent)

Sept. 22, 1930.

Meeting of the German Pharmacologic Society

The session of the Deutsche pharmakologische Gesellschaft, held in Königsberg under the chairmanship of Schüller of Cologne, offered many new and interesting features. Starkenstein of Prague discussed the "Problems of Inflammation from the Pharmacologic Point of View." H. Freund of Münster presented the "Pharmacologic Problems of Febrile Disorders"; Storm of Leyden and Hansen of Heidelberg considered the "Field of Allergy," while Schulemann of Elberfeld offered a paper on the "Problems of the Reticulo-Endothelium and Its Functions." Of the other individual addresses only brief mention can be made: E. Poulsson of Oslo reported on researches from which it is evident that the reserve of vitamin A in the females of mammals is much greater than in the males. Seel of Hamburg was able to isolate vitamin A in an extremely pure form, which can be kept, however, only when dissolved in oil. Chemically, it is probably to be regarded as a labile oxidation stage of oxycholesterol, since artificial products of this kind, with similar action, can be prepared, and there is a great similarity between the two bodies as regards their physical behavior. Hildebrandt of Giessen reported that his investigations led to the conclusion that ephedrine acts, to be sure, on the peripheral vessels but its action is not in all respects equal to that of epinephrine. In his opinion the highly toxic effects of ephedrine on the heart exclude its use as a remedy in a state of collapse. According to O. Krayer of Berlin, changes in the frequency of the heart beat influence the volume of the output per minute much more than hitherto believed. The optimal range of frequency of the sufficient heart is rather extensive; the lower limit of the insufficient heart is shifted upward to a considerable extent. Antischkov of Leningrad reported on the dependence of the stimulability of the heart ventricle on the condition of the Keith-Flack sino-auricular node. Aschoff discussed the detailed structure of the system by which stimuli are conveyed to the heart. Duesberg of Berlin spoke on the mechanism of the action of liver diet, which was of great interest. In the regeneration of an anemia, the mode of decomposition of hemoglobin is of importance. With the formation of methemoglobin the regeneration process is accelerated and the hematin formation is lessened. In pernicious anemia, hematin is always present, if there are any blood decomposition products whatever; but in the crisis and at the beginning of the liver therapy, methemoglobin is demonstrable. This observation indicates that the substance active in the liver in pernicious anemia is a precursor of methemoglobin. A preliminary report has been published in the *Deutsche medizinische Wochenschrift* (number 38). Further details will be given later.

Attendants at the session got the impression that, after a period of conspicuous aloofness, pharmacology is again showing interest in questions of practical therapeutics, and it is the general opinion that it would be well if the observations of the clinic were brought out more fully in the session papers and particularly in the discussions that follow their presentation. Practical therapy, the inquiries into causal relations, and the rational methods of treatment would certainly score a gain, while the strictly scientific discussions would not suffer any abridgment. Many pharmacologists have a strong desire for such cooperation, and they have in recent years repeatedly given public expression to this desire.

The Prescription of Copernicus

Copernicus, who taught the world the order of the system of sun and planets now accepted, was originally a physician. In the old fortress in Frauenburg, East Prussia, where Copernicus spent many years, the Copernicus Room serves as a memorial of the great scientist, and in his portrait he is seen with his medical insigne, lilies-of-the-valley, which constituted his favorite drug. In a window seat of this room may be noted a copy of the only prescription of Copernicus that has been preserved. This document has been deciphered by Professor Eichholtz, the director of the Königsberg Pharmacologic Institute, and in the *Deutsche medizinische Wochenschrift* an account of his researches may be found. The prescription comprises twenty-one different substances, which were listed according to the rules of the art, doubtless with the aid of astrologic data. It begins with drugs of a vegetable nature, which, to some extent, are still used; for example, camomile and sandalwood. Copernicus interested himself in the growing in East Prussia of important foreign medicinal plants, in order to secure a supply for medical prescriptions. At the end of the list are the inorganic substances, which are influenced by the then so general belief in the therapeutic potency of precious stones, or jewels. Though we may read with a smile of prescribing emerald, sapphire, amber and corals, we will recall that gold and silver have returned to our armamentarium. The prescription, which was known before Copernicus, was handed down from one generation of physicians to the next, as is still the case. It was employed doubtless in gastric and intestinal disorders, and we have no reason to deny that it was effective in certain cases. We may assume that a physician such as Copernicus was perfectly able to recognize the therapeutic effects of his prescriptions. That may be seen from the fact that the lily-of-the-valley was his favorite medicinal plant. Of the drugs that he employed, that derived from the lily-of-the-valley was the most potent and, at the same time, the most dangerous. It could develop its therapeutic power only in the hands of a physician who, as Copernicus, was equally distinguished by his courage and his confidence. In any event, Copernicus may well be accorded a worthy place in the history of medicine.

Marriages

Scipio H. Africano to Miss Claire Adelaide Marola, both of Union City, N. J., September 20.

Borden Smith Veeder to Mrs. Eugene Henry Angert, both of St. Louis, September 15.

James H. D. Cunnie, Stonehurst, Pa., to Miss Rene Carpenter of Clifton, in September.

Henry C. Allen, Circleville, Ohio, to Mrs. Harriett Weldon of Columbus, August 27.

William J. Sullivan, St. Louis, to Miss Anna May Naylor, June 14.

Deaths

Ross Hall Skillern ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1897; professor of laryngology, Graduate School of Medicine of the University of Pennsylvania; professor of laryngology, Medico-Chirurgical College, 1912-1918; Chairman of the section on Laryngology, Otology and Rhinology, 1920-1921, of the American Medical Association; member and past president of the American Academy of Ophthalmology and Oto-Laryngology, and the American Laryngological, Rhinological and Otological Society; member of the American Laryngological Society, and the American College of Surgeons; member of the American Board of Otolaryngology since its inception; laryngologist to the Rush Hospital, 1900-1913; served during the World War; author of "The Accessory Sinuses of the Nose"; aged 54; died, September 20, of cerebral hemorrhage.

George Wallace Nott ⊕ Racine, Wis.; Rush Medical College, Chicago, 1896; member of the American College of Surgeons; formerly instructor of pathology at the Wisconsin College of Physicians and Surgeons, Milwaukee; on the staffs of St. Mary's and St. Luke's hospitals; aged 58; died suddenly, September 7, of heart disease.

Alfred James Grant, London, Ont., Canada; University of Western Ontario Medical School, London, 1901; member of the American College of Surgeons; assistant professor of surgery at his alma mater; chairman of the board of education; on the staff of St. Joseph's Hospital; aged 51; died, May 26, of heart disease.

Thomas Herbert Williams, Birmingham, Ala.; Birmingham Medical College, 1913; member of the Medical Association of the State of Alabama; on the staff of the South Highlands Infirmary; aged 40; died suddenly, August 5, of heart disease, while performing a cesarean operation.

Helen Arentsen Harbert, Kenosha, Wis.; Northwestern University Woman's Medical School, Chicago, 1891; aged 71; died, September 7, in St. Elizabeth's Hospital, of injuries received when she jumped from a third story window.

James R. Davey, Chicago; Chicago Medical College, 1887; member of the Illinois State Medical Society; for many years on the staff of the Illinois Charitable Eye and Ear Infirmary; aged 71; died, September 16, of angina pectoris.

William Russell Fargo, Baltimore; University of Maryland School of Medicine, Baltimore, 1929; aged 27; on the staff of the Union Memorial Hospital, where he died, September 13, as the result of an infection of the face.

Thomas S. K. Morton, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1885; formerly on the staff of the University Hospital; aged 65; died suddenly, September 8, in Princeton, N. J.

Frank Hopkins Hurd, Hiram, Ohio; Miami Medical College Cincinnati, 1872; member of the Ohio State Medical Association; aged 79; died, July 26, in the Cleveland Clinic Hospital, of cerebral abscess.

John Collison, Red Deer, Alta., Canada; McGill University Faculty of Medicine, Montreal, Que., 1901; formerly mayor and for many years member of the local school board; aged 57; died, May 15, in Vancouver.

Julius Edgar Duncan ⊕ North Wilkesboro, N. C.; University College of Medicine, Richmond, 1907; past president of the Wilkes County Medical Society; aged 55; died, August 15, of carcinoma of the rectum.

Robert L. Jump, Oakland, Calif.; Cooper Medical College, San Francisco, 1890; member of the California Medical Association; aged 65; died, June 16, of myocarditis and arteriosclerosis.

William Porteous McCowan, Winnipeg, Man., Canada; University of Toronto Faculty of Medicine, 1916; served during the World War; aged 39; died, May 16, of septic meningitis.

Marion Kirkland Scruggs, Itta Bena, Miss.; Medical College of the State of South Carolina, Charleston, 1881; aged 72; died in August, of cerebral hemorrhage and arteriosclerosis.

Benjamin Frank Murray, Boston; Tufts College Medical School, Boston, 1909; member of the Massachusetts Medical Society; aged 52; died, May 15, of bronchopneumonia.

Isaac Walter Umbel, Orient, Pa.; College of Physicians and Surgeons, Baltimore, 1906; aged 50; died, June 25, of a skull fracture received in an automobile accident.

Harry L. Miller, Indianapolis; American Health College, Cincinnati, 1886; aged 65; died, August 27, in the City Hospital, of general peritonitis and perforated gastric ulcer.

Leon Herbert Tombaugh ⊕ Waukegan, Ill.; Medical Department of Western Reserve University, Cleveland, 1877; aged 78; died, August 3, of myocarditis.

Julia Stringham Baright, East Northfield, Mass.; Chicago Homeopathic Medical College, 1889; aged 82; died suddenly, August 19, of cerebral hemorrhage.

Elias Smith Richardson, Evart, Mich.; University of Michigan Medical School, Ann Arbor, 1870; aged 88; died, August 16, of chronic myocarditis.

William Peyton Barton, Mount Juliet, Tenn.; Vanderbilt University School of Medicine, Nashville, 1882; aged 74; died, August 31, of cerebral hemorrhage.

John Austin Munson, Wawarsing, N. Y.; Medical Department of Columbia College, New York, 1883; aged 72; died, August 19, of chronic myocarditis.

Francis Xavier Beaulieu, Taunton, Mass.; Baltimore Medical College, 1900; member of the Massachusetts Medical Society; aged 51; died, June 13.

Robert Montgomery Houck, Vandalia, Ill.; Rush Medical College, Chicago, 1882; aged 72; died, August 28, in a hospital at Dowagiac, of diabetes mellitus.

S. P. Meredith, Mankato, Minn.; Hahnemann Medical College and Hospital, Chicago, 1882; aged 78; died, September 1, of hypertrophy of the prostate.

William F. Oliver, Arlington, Wash.; Medical Department of Butler University, Indianapolis, 1879; aged 71; died, August 24, of arteriosclerosis.

Winfred Carle Pike ⊕ Boston; Tufts College Medical School, Boston, 1900; aged 61; died, August 21, in Cape Elizabeth, Me., of angina pectoris.

William O. Cheeseman, Chicago; Hahnemann Medical College and Hospital, Chicago, 1884; aged 79; died, September 5, in Winnetka, Ill., of senility.

George Henry Pagels, Worthington, Ohio; Ohio Medical University, Columbus, 1898; aged 60; died, September 4, in Columbus, of heart disease.

James M. Hayes, Newport News, Va.; Howard University School of Medicine, Washington, D. C., 1914; aged 44; died, August 15, of encephalitis.

Charles B. Vigus, Eau Gallie, Fla.; Medical College of Indiana, Indianapolis, 1895; formerly mayor of Eau Gallie; aged 60; died, in August.

Oliver A. Price, Cincinnati; Louisville (Ky.) Medical College, 1890; aged 62; died, September 7, in the Deaconess Hospital, of cerebral edema.

Lucy A. Bannister, New York; Woman's Medical College of Pennsylvania, Philadelphia, 1902; aged 74; died, August 25, of coronary thrombosis.

Alexander F. MacLeod, Spokane, Wash.; University of Michigan Medical School, Ann Arbor, 1879; aged 82; died, June 30, of pneumonia.

Carter Braxton Dean, Waco, Mo.; Eclectic Medical Institute, Cincinnati, 1892; aged 90; was killed, August 8, in an automobile accident.

Thomas Russell Cooke, Atlanta, Ga.; Atlanta Medical College, 1867; aged 88; died, August 5, of cerebral hemorrhage and arteriosclerosis.

Harry B. Chritzman, Mercersburg, Pa.; Jefferson Medical College of Philadelphia, 1889; aged 62; died, March 24, 1930, of acute prostatitis.

William F. Matthews, Trenton, Tenn.; Vanderbilt University School of Medicine, Nashville, 1880; aged 75; died, July 29.

Francis James Bateman, Strathroy, Ont., Canada; Trinity Medical College, Toronto, 1888; died, April 12, of cardiovascular disease.

Benjamin Rosenbloom, Atlanta, Ga.; Atlanta School of Medicine, 1911; aged 45; died, July 29, of strangulated inguinal hernia.

Burnley Duke Tyler, Guthrie, Ky.; University of Nashville (Tenn.) Medical Department, 1894; aged 67; died, August 20.

Percy James Emerson, Sidney, B. C., Canada; University of Toronto Faculty of Medicine, 1911; aged 56; died, May 2.

Philip Henry Weber ⊕ Oakland, Calif.; Cooper Medical College, 1905; aged 49; died, July 7, at Yosemite.

Bureau of Investigation

THE PAVIA "CANCER CURE"

With a Brief Biographical Sketch of Its "Discoverer"

During the past year, editors of newspapers and magazines have received from one Burroughs F. Perry of 221 Shoreland Arcade, Miami, Fla., a piece of mimeographed publicity material headed, "Cancer and Goiter Cure Is Asserted." The statement is to the effect that one Charles Pavia, whom Perry describes as a "mental scientist of Miami," has discovered a wonderful cure for cancer and goiter! Further, according to Mr. Perry's material, the Pavia formula "feeds the cancer germs, satisfies it and destroys it by self satisfaction." One infers from this statement that cancer is caused by a germ and that this particular germ thinks so much of Mr. Pavia's remedy that when it gets the opportunity, it gorges itself to death!

The main exploiter of Pavia's remedy seems to be one R. B. Fisher, whose stationery announces him to be an attorney; he, too, does business from 221 Shoreland Arcade, Miami. Mr. Fisher has declared that he is the "Secretary-Treasurer of the corporation that is manufacturing his [Pavia's] remedies." According to Attorney Fisher, Pavia is not a "mental scientist" as stated by Perry, but a "medical scientist."

Mr. Fisher wrote to the American Medical Association, asking the Association's cooperation in testing out Mr. Pavia's "cancer and goiter remedy." Mr. Fisher was told that the Association received, on an average, one letter a week similar to his from persons who claimed to cure cancer and that if it attempted to undertake a scientific investigation of every one of these alleged cures, the Association would have time for nothing else and, besides, as experience has demonstrated, would be wasting its time in doing so. He was told, further, that the very fact that he classified Pavia's alleged remedy as a cure for both cancer and goiter indicated the lack of even an elementary knowledge of the problems involved. This letter so pained Mr. Fisher, who read into it the statement that the medical profession condemned all cancer remedies as worthless and not worthy of investigation, that he returned the letter written by the Bureau of Investigation, in order that it might be destroyed. The letter was returned in a registered envelope for which a return receipt was requested!

Later, Mr. Fisher sent to THE JOURNAL what he described as a biographical sketch of the life of Charles Pavia, "scientist of Miami." From this sketch, it appears that Charles Pavia was born in 1893 "on the east side of New York" of parents who came to the United States from Italy in 1883. As a child, Pavia sold newspapers and one of his customers was Alfred E. Smith. After leaving school, Pavia became a telegraph operator and, about that time, became interested in the development of a cure for cancer. Later, Pavia went to California, where he met Jack London. He then went to Alaska, where he met Rex Beach and Tex Rickard; returned to San Francisco, became a seaman on the Dollar Line, and went to Hawaii and Australia, met Captain Robert Dollar, who is said to have taken a liking to him. Once again Pavia came to San Francisco, where he is said to have gone into chemical and research work under "Professor William J. Thackeray, a well-known scientist, then in Oakland."

In 1918 Pavia returned to New Jersey to visit his parents and, while there, continued his experiments and developed a remedy that was applied to a friend of his, who "had a clot of blood forming on his head." In ninety days' time, "the head was entirely cured." Then a woman acquaintance with a "clabbed breast" was treated with Mr. Pavia's remedy and, as his biographical sketch says, "err [*sic!*] long the breast was entirely cured." During the influenza epidemic, "Mr. Pavia cured every case of that disease that came to his personal attention." He is said to have offered to Dr. Royal S. Copeland, at that time "Medical Director" of New York City, his formula, free of charge, if Dr. Copeland would use it in relieving the epidemic. But, alas, Dr. Copeland rejected the offer, because "the American Medical Association would not permit him to use any new-found remedy, unknown, and discovered by one not of the medical profession."

Disappointed by Dr. Copeland's attitude, Mr. Pavia kept his formula and experimented with it further and "found that his remedy cured not only influenza, La Grippe and pneumonia, but also burns, scalds, sores, carbuncles, boils, piles, rheumatism" —and what have you! Then Mr. Pavia went to Florida, where he bought considerable property and built a house and, as his financial condition improved, "he bought himself a handsome cruiser yacht." He was still further successful in the real estate field, making a fortune and buying still "another home in the Coconut Grove district" and continuing his experiments in materia medica.

Mr. Pavia was a good friend of William Jennings Bryan, says the sketch and "obtained many valuable ideas from Mr. Bryan in their discourses upon everloution [*sic!*] and the megnetic [*sic!*] powers of universal life." Another close friend of Mr. Pavia's, still quoting the sketch, was " 'Uncle' Billy Witham of Atlanta, Georgia, the banker," as well as "Carl Fisher, the developer of Miami Beach" and "likewise the late James Allison."

By this time Mr. Pavia had developed a remedy "backed by proven and unquestioned tests" that would cure cancer, as well as another remedy "for tumors." But, about this time, the Florida real estate boom collapsed and the hurricane that visited Miami in 1926 destroyed his "laboratory equipment." As a result, Pavia, it is said, lost the fortune he once had. Mr. Pavia still has his "cures" for various conditions, however, and is at present experimenting with a "capsule for the internal treatment of cancer, also another remedy which he hopes will aid tuberculosis victims."

So much for the biographical sketch of Mr. Pavia. Later publicity matter sent out by attorney Fisher, secretary and treasurer of the Pavia corporation, includes an elaborate testimonial for Pavia's "cancer cure," credited to L. D. Rogers of Chicago. Readers of this department of THE JOURNAL will remember L. D. Rogers and his "Auto-Hemic Serum" quackery that was dealt with in detail some years ago.

A year ago, Pavia and Fisher called on Dr. Charles D. Cleghorn, president of the Dade County (Miami, Fla.) Medical Association, with the request that he would check up on certain cases of patients that had been treated with the Pavia remedy. Dr. Cleghorn did check up on three cases, on which he reports as follows:

"CASE 1.—White female, aged 42, recurrent carcinoma of cervix after operation and radiation. Reported incurable. After a month's application of salve, condition was increased in severity and size.

"CASE 2.—White female, aged 48, carcinoma of cervix of two years' duration, one radium radiation. No change after seven weeks' application.

"CASE 3.—White male, aged 50, inoperable carcinoma of lower face. No treatment until February, 1929, but two years' duration. Deep x-ray therapy for three months with little result. Steady loss of flesh and strength and increased discharge and hemorrhage following Pavia remedy." [Dr. Cleghorn reported, later, that this patient "proceeded to an early death."]

In June, 1930, the Miami Industrial Board was requested to appoint a committee to take up an investigation of the "cure." After a short review, they refused to appoint such a committee.

What the remedy itself is, we do not know. Dr. Cleghorn states that the description of the formula, as given him, was "vegetable oils, camphor, menthol and turpentine in a base of animal fats." The chemists of the A. M. A. Chemical Laboratory reported that a cursory examination of a specimen of this remedy showed it to be a brownish-yellow ointment with a terebinthinate odor, indicating the presence of turpentine, menthol and camphor. There was practically no ash, and qualitative tests indicated the absence of heavy metals (arsenic, zinc, etc.), alkaline earth metals, salicylates and alkaloids.

It thus appears from information at hand that Mr. Pavia's "cancer cure" differs from the average "cancer cure" paste in that it is not a caustic substance. From the directions that go with the preparation, the patient is instructed to dissolve a tablespoonful of common salt, or epsom salt, in a half-pint of water, bathe the malignant area, and let it dry without wiping; then apply the paste and change the substance at least three times daily. The patient is also told to abstain from meats, but in another paragraph is notified that he may eat beef liver, lamb and spring fowl! While it would appear that the preparation was intended primarily for external application, the instructions also state that in cases of cancer of the stomach, rectum or uterus, "the salve may be applied with a tampon."

In closing, it is but fair to state that the exploitation of this remedy does not seem to have the crude and heartless commercial taint that is to be found in such cancer-cure fakes as the Hoxsey, the Tilton, the Koch, or some of the other widely-exploited remedies in this field. It may well be that Mr. Pavia is sincere. However, a worthless cancer remedy sincerely exploited may prove just as fatal (by deferring scientific treatment beyond the curative stage) as the crudest of cancer cure swindles.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

TETANUS AFTER GUNSHOT WOUND

To the Editor:—I recently cared for a man who had been shot in the buttocks with two buckshot. These shot perforated the body of the ileum and passed on into the abdominal cavity, where they perforated the bowel in about eighteen places. I saw the patient about eight hours (?) after he was shot. A laparotomy was performed and the perforations were closed. One shot was located and removed when it was discovered during the repair. Owing to the precarious condition of the patient, tetanus antitoxin was not given. An uneventful recovery with profuse drainage up to the tenth day was made. On the tenth day, after about two hours of headache, the patient was seized with a typical tetanic convulsion. The head held back rigidly, the eyes wide open and staring straight ahead, or pulling upward, bloodshot, and the jaw rigid. With great effort he acknowledged questions with slight forced movements. He later told us all the questions we asked. The treatment was 5,000 units of tetanus antitoxin, five minutes after the convulsion started; 40,000 units intravenously fifteen minutes after the convulsion started; 53,000 units intramuscularly twenty minutes after the convulsion started, and then 20,000 units every hour intramuscularly for five hours, or 100,000 units, making a total of 193,000 units. Five hours after the onset of the convulsions, the patient was free from all tetanic contraction. No history of epilepsy was found. A history of a skull injury five years previously was found. No convulsions followed. Some of my contemporaries maintain that this could not be tetanus or the recovery could not have been so rapid. I have seen two cases of tetanus previous to this, and I maintain it was a typical tetanus, with a typical history and incubation period, and was a recovery following the immediate use of the antitoxin. May I have your discussion or opinion?

E. J. BALL, M.D., Nekoosa, Wis.

ANSWER.—The type of wound involving the intestine ten days before the onset of the convulsions fits in with the predisposing factors of tetanus. Treatment was well carried out and it is quite probable that recovery may be credited to the prompt and energetic administration of antitoxin. However, cases of tetanus which develop after the first week have a fairly good prognosis with antitoxin treatment.

While it is known that antitoxin has no effect on the toxin that has entered into contact with the nervous system, the history of this case is not at all incompatible with tetanus. It illustrates the importance of huge doses of antitoxin as early after the onset of symptoms as possible.

Local surgical treatment for drainage of pus pockets and the correction of conditions favoring the development of anaerobic organisms should be done both in the prophylaxis and the treatment of tetanus.

RETICULOCYTES IN BLOOD

To the Editor:—Please inform me as to the proper way to determine and detect the number of reticulocytes in the blood. How are they recognized?

A. W. PATTERSON, M.D., Fonda, Iowa.

ANSWER.—The reticulated structure of the red cells is not observed with ordinary stains but requires "vital stains" to bring out this detail. There are several methods which have been suggested for the detection and enumeration of reticulocytes. The following is sufficient for ordinary work:

A drop of a solution of brilliant cresyl blue (0.3 per cent) in 95 per cent alcohol (filtered) is allowed to dry on a cover glass. The drop is spread evenly over the cover glass with a glass rod, and the alcohol evaporates leaving a thin film of the dried stain deposited on the glass. Large numbers of cover glasses can be prepared for future use as the dried stain does not deteriorate. A drop of blood is placed on a clean slide and the cover glass is lowered on to it. If the glass has been thoroughly cleaned and there is no precipitate of stain, the blood will spread out evenly and the stain will diffuse through the preparation immediately.

If no permanent record is desired, the cover glass may be ringed with petrolatum or melted paraffin and examined under the microscope. This preparation keeps for only a few hours. In cases in which regeneration in response to treatment is of interest, it is often an advantage to prepare permanent preparations for record. This can be done by modifying the technic described.

A permanent preparation can be made if, after the cover glass has been lowered on the slide, it is pulled off the slide by a quick lateral tug and allowed to dry in the air. Schilling has introduced a detail in the last part of the method which, if properly carried out, gives a satisfactory preparation. Instead of allowing the cover glass to dry immediately it is placed in a damp chamber (petri dish lined with moistened filter paper) for from five to ten minutes and then dried in the air. The cover glass can now be stained in the routine manner for staining blood smears.

The reticular material stains blue (basophilic) and is easily recognized in the pink stained red corpuscles. The appearance of reticulocytes varies and a blue precipitate of different patterns is seen, depending on the concentration of the so-called reticulum in the cells.

The reticulated red cells encountered in from 500 to 1,000 red cells are counted and the percentage is calculated. The preparation must be sufficiently thin and even to facilitate this count. In normal blood the number of reticulocytes has been estimated at 2 per cent.

PRISM-REFRACTOMETER

To the Editor:—Enclosed please find circular on a prism-refractometer. I would appreciate information about this instrument.

F. N. KNAPP, M.D., Duluth, Minn.

ANSWER.—This instrument is not new, having been on the market for at least five years. It is just as accurate as any of the other refractometers that have appeared during the past twenty years and is probably a little simpler to use. The personal equation of the operator plays a definite part as in all similar instruments, and the results are fairly comparable to a rapid test-case manifest refraction. However, the advertisement is incorrect in stating that "it is possible with it to obtain reliable results without employing atropine." The accommodation of the patient is not relaxed in the slightest during the examination with this instrument; consequently, the refraction is no more accurate than any other refraction without cycloplegia.

TREATMENT OF RENAL CALCULI

To the Editor:—Will you kindly outline the most approved treatment for renal calculi in a man 38 years of age? M.D., Alabama.

ANSWER.—There is no single method of treatment that under all conditions may be designed as superior to other treatments. The selection of therapeutic intervention depends on the peculiarities of each instance. As leading working points may be considered the intensity of the suffering of the patient, the frequency of renal colics and the objective symptoms developing as to morphologic and functional renal disturbances. Pronounced symptoms originating with concretions within the kidney parenchyma form a strict indication for operative removal.,

In some instances of pelvic calculi an attempt at flushing out the stones may be indicated and occasionally such a procedure may be successful. This intervention may be justified if the concoction or concretions are of moderate size and if the contours of their roentgen shadows are smooth and regular. Very large stones and stones of irregular and rough surface are not a favorable object for such attempts. It also has to be considered whether their mobilization does not inflict traumatism to the structures more severe than their operative removal.

The cystoscopic removal of stones is attempted by ureteral catheterization and the injection of some lubricant. The therapeutic value of various drugs to be taken orally in order to promote the evacuation of concretions is rather doubtful. The flushing may be repeated if the catheterization is not followed by severe reaction.

Star shaped concretions, especially if one branch extends into the ureteropelvic junction, cannot be the object of cystoscopic removal. Pronounced deformation of the renal pelvis, copious hematuria and the appearance of functional disturbances of the renal parenchyma form a strict indication for operative removal. This indication is more accentuated if every renal attack is

accompanied by general malaise, vomiting and disturbances in the lower intestinal tract.

The modern tendency is to regulate or remove all abnormalities. For the application of this general rule to renal concretions it also has to be considered that the operative removal of renal conditions properly executed is particularly without danger of life and furnishes satisfactory immediate results. There is just as little guarantee against recurrence in the cystoscopic as in the operative removal.

Spinal anesthesia, gridiron exposure of the kidney and pelvotomy permit the operative removal of renal concretions under the most favorable prospects.

POSSIBLE ANEURYSM IN CRANIUM

To the Editor:—A white woman, aged 49, married, seen June 16, had had a sudden diplopia two days before while she was working about the house. This was her only symptom for about an hour. Then she had a sudden excruciating pain in and around the right eye. Rapidly the pain extended over the entire head and into the back of her neck. Another physician had seen her at the onset of the attack. When I first saw her she complained of diplopia, ptosis of the right eyelid, excruciating pain in and around the right eye, severe headache, and pains in her neck. She had had typhoid at 24 but no other severe illnesses. She was in a slight car accident in 1918. About May 25, 1930, while hoeing in the garden, the patient had a similar sudden pain in the right eye and was totally blind. She lay down for about an hour and felt perfectly well. About June 6, while papering a ceiling, she had a similar attack of pain in the right eye, diplopia and headache for about an hour, but no blindness. Examination, June 16, revealed complete ptosis of the right lid, the right pupil widely dilated and fixed, the right eye deviated outward and somewhat downward and inability to move the right eye—in other words, a total ophthalmoplegia. The blood pressure was: systolic, 180; diastolic, 100. Kernig's sign was positive. Neurologic examination was otherwise negative. The remainder of the physical examination was negative except for a small adenomatous goiter and a loud systolic murmur over the entire precordium. The patient was conscious and cooperative. Several hypodermic injections of morphine were required to control the pain. Spinal puncture done the next day showed bloody fluid under considerably increased pressure. The eye pains and headache were completely relieved for two days after spinal puncture. Two days after the first visit she was found to have developed an auricular fibrillation, which responded to digitalis medication. Laboratory examination showed the urine normal and spinal fluid and blood Wassermann reactions negative. Now, five weeks after the onset of the present attack, she still has a total ophthalmoplegia, occasional pains in the right eye and a loud systolic murmur over the entire precordium, without other neurologic symptoms. Kindly give opinion as to the most probable lesion and prognosis. Please omit name.

M.D., Minnesota.

ANSWER.—The abrupt onset and the presence of blood in the spinal fluid make it most probable that the lesion is of vascular origin, possibly a hemorrhage from an aneurysm. Its location must be within the cranium or at least there must be a communication with the subarachnoid space. All three attacks have involved the right eye only and have affected not only the motor nerves but also the optic nerve in one attack and the sensory nerves. This renders it probable that the lesion is located somewhere near the optic foramen, though one would expect to find some proptosis from pressure on the veins. This symptom is not mentioned. If this diagnosis is correct, while it is possible that there may be recovery from the palsies due to damage to the motor nerves, there is always a serious danger of a recurrence of the bleeding with possibly a fatal result. It would be wise to have the patient seen by a neurosurgeon for study as to diagnosis and the possibility of surgical intervention with a view to ligating an aneurysm if present.

RADIUM AND ROENTGEN RAY IN UTERINE CANCER

To the Editor:—What is the percentage of cures of inoperable cancer of the uterus by the use of radium or roentgen rays?

A. V. Bou, M.D., San Lorenzo, Porto Rico.

ANSWER.—Bowing and Fricke reviewed 1,094 cases of carcinoma of the cervix treated with radium at the Mayo Clinic from 1915 to 1924. They were able to follow up 1,001 cases for a number of years, and of the 549 cases traced, which were considered inoperable, 21.49 per cent were classified as five year cures.

Healy reviewed the cases of carcinoma of the cervix treated by irradiation at the Memorial Hospital, New York, in 1922 and 1923; of the 161 patients admitted in the advanced stage, 23 per cent were alive at the end of five years. Healy grouped these cases from the histologic standpoint of the degree of anaplasia in the biopsy specimens into the adult cell type, the plexiform, and the anaplastic. These groups corresponded closely to three degrees of potential malignancy, as well as to the grades of radiosensitivity. The adult cell type of carcinoma is resistant to radiation and the anaplastic type is highly radiosensitive, while the plexiform type occupies an intermediate position. The percentage of cures among the adult cell type was only 4, while among the anaplastic carcinomas the percentage of cures was 42.

Among 58 patients treated with radium by Harrold, after a five year period 31 per cent were still living and had no sign of recurrence. Ward refers to a study by Heyman of the results of surgical and radium treatment in carcinoma of the cervix at the Radium-Hemmet in Stockholm. Heyman combined the cases from twenty surgical clinics and seventeen radiologic clinics, leaving out all doubtful statistics and not deducting intercurrent deaths or cases not traced. His standard in this study was the usual five year cure and, of the total cases treated, including operable, inoperable and borderline cases, there was 16.3 per cent of cures following radiologic treatment. Obviously, these figures cannot be directly compared with the preceding ones. The percentage of cures among the operable and borderline cases in Heyman's survey was 34.9.

Following are the references to the articles mentioned above:

Bowing, H. H., and Fricke, R. E.: Results Obtained in Treatment of Cervix Uteri with Radium and Roentgen Rays from 1915 to 1924, inclusive. *Radiology* **14**: 211 (March) 1930.

Greenough, R. B.: Treatment of Malignant Disease with Radium and X-Ray: Cancer of the Cervix (Report of the Committee on Treatment of Malignant Disease with Radium and X-Ray of the American College of Surgeons), *Surg. Gynec. Obst.* **49**: 247 (Aug.) 1929.

Bowing, H. H., and Fricke, R. E.: Radium Treatment of Carcinoma of the Cervix During 1927, *Am. J. Roentgenol.* **21**: 529 (June) 1929.

Healy, W. P.: End-Results of the Treatment of Cervical Cancer by Radiation Therapy, *Am. J. Obst. & Gynec.* **16**: 594 (Oct.) 1928.

Harrold, C. C.: Radium in Cancer of the Cervix: A Report of Fifty-Eight Cases Treated in 1921-1922 with 31 per cent Five Year Cures, *J. M. A. Georgia* **17**: 103 (March) 1928.

Ward, G. G.: Radium Therapy of Carcinoma of Cervix Uteri: An Analysis of Results Obtained at the Woman's Hospital, New York, *Brit. M. J.* **2**: 607 (Oct. 6) 1928.

HYPERGLYCEMIA

To the Editor:—Will you please tell me what are the criteria for differentiating hyperglycemia of diabetes mellitus from that of chronic nephritis, or cite me to the literature bearing on the point? Please withhold name.

M.D., North Carolina.

ANSWER.—It is not always easy to differentiate a hyperglycemia of diabetes mellitus from that of chronic nephritis. The history is of considerable importance, as a patient with diabetes who has reached the stage of secondary nephritis will usually give a characteristic history and will usually also show glycosuria. On the other hand, the patient with nephritis will not give a diabetic history and will not show glycosuria. In case of doubt the reaction to an increase of carbohydrate load may settle the point. The hyperglycemia due to diabetes will almost invariably respond to excessive carbohydrate intake with glycosuria, while the nephritic will not.

On the other hand, there is a certain group of elderly arteriosclerotic patients with glycosuria and hyperglycemia. There is still considerable dispute as to whether these patients are truly diabetic or not, but from a practical point of view their reaction to excessive carbohydrate load is of importance in differential diagnosis.

SIGNIFICANCE OF BLOOD PRESSURE DETERMINATIONS

To the Editor:—What is the significance of a high diastolic pressure in (*a*) low systolic; (*b*) normal systolic; (*c*) high systolic? Please omit name.

M.D., New York.

ANSWER.—The diastolic pressure is assumed to vary with changes in the peripheral resistance, and a high diastolic pressure to indicate an increased peripheral resistance. The peripheral resistance may be increased by vasoconstrictive changes in the peripheral vessels, by increased tonus, or by anatomic changes in the vessels. Where there is a high diastolic pressure and a comparatively low systolic pressure, it might be assumed that there is an increased peripheral resistance with a relatively small volume output from the heart, the result in some cases of insufficient heart action. Such a condition does obtain in the later stages of cases in which there has been a high systolic pressure, and the heart is failing. It is also seen in cases which for the time at least appear to be doing well. The high diastolic pressure is nevertheless ominous and significant. The second class, with the normal systolic pressure, probably belongs in the same category as those with a low systolic pressure. The cases showing high diastolic and high systolic pressures represent the condition normally found in hypertensive kidney and vascular disease, in which there is an increased peripheral resistance due to vasoconstrictor changes in the arterioles, or increased tonus in the larger vessels, with a strongly acting heart muscle forcing a normal, or in some cases an increased, volume output through the constricted vessels.

TREATMENT OF POSTOPERATIVE ADHESIONS

To the Editor:—Is there anything that can be done for adhesions after abdominal operations (three were done on my patient although I believe unnecessarily) aside from morphine? Please omit name.

M.D., New York.

ANSWER.—There is a general feeling among American surgeons that operations for relief of symptoms ascribable to abdominal adhesions are ill advised. It is assumed that separation of adhesions will be accompanied by the creation of raw surfaces and followed by the formation of fresh adhesion bands.

In general, operations for relief of adhesions yield a high percentage of satisfactory results, provided the adhesions are located in the lower part of the abdomen. The operation must be performed gently, patiently and with painstaking care. Deliberate inspection and careful manipulation of the adherent surfaces reveal natural lines of cleavage where the tissues may be separated by blunt dissection without creating fresh raw surfaces. The use of a rubber pack rather than gauze packing, blunt dissection in preference to cutting, and gentle separation in contrast with tearing, are all essential features in the technic. Methods available for the covering of raw surfaces, the employment of omental grafts, and other technical features in the detail of these most difficult operations cannot be discussed adequately in an abbreviated reply.

EOSINOPHILIA AND ASTHMA

To the Editor:—What is the relationship between eosinophilia and asthma? I read the other day that when a diagnosis of asthma is in doubt the finding of more than 2 per cent eosinophils confirmed the diagnosis. Please omit name.

M.D., Michigan.

ANSWER.—Eosinophilia occurs in most cases of true allergic bronchial asthma. Percentages vary—rarely less than 2 and frequently from 8 to 12 or even higher. It is an important point in arriving at the diagnosis. However, some cases show no increase in eosinophils. Eosinophilia is found not only in the blood but also in allergic lesions elsewhere, such as in the mucosa of allergic (hyperesthetic) rhinitis.

THERAPEUTICS OF IRON—USE OF ARSPHENAMINES AND SODIUM THIOSULPHATE

To the Editor:—1. What is the comparative value of iron by injection and by mouth? What is the best iron preparation for use hypodermically, indications for such use and efficacy of this medication? 2. Can neoarsphenamine and sulpharsphenamine be dissolved in a solution of sodium thiosulphate in using these arsenicals intravenously and does such a procedure ward off the ill effects of these drugs in susceptible persons? Kindly omit name.

M.D., New York.

ANSWER.—1. There is no advantage to the administration of iron by injection, excepting in cases of gastric intolerance. For this purpose, iron and ammonium citrate, 1 cc. of 10 per cent solution, is perhaps the most commonly used form. Though efficient, this method of administration is too painful and too liable to be followed by local and systemic reactions to be employed for any excepting unusual conditions.

2. Neoarsphenamine can be dissolved in sodium thiosulphate solution; and it is claimed by K. Hubschmann (*Urol. & Cutan. Rev.* **34**:91 [Feb.] 1930), on entirely insufficient experimental and clinical evidence, that this combination lessens the toxicity without impairing the activity of the arsenical. In general, it is considered to be much better to give the arsphenamine preparations alone, that is, without admixture with other substances, owing to the possibility of undesired chemical reactions or contamination.

JACKSON'S MEMBRANE

To the Editor:—I would like the definition, possible etiology, and treatment of Jackson's membrane. Please omit name.

M.D., New York.

ANSWER.—Jackson's membrane is a term usually applied to a broad filmy band or membrane covering the anterior wall of the cecum and first part of the ascending colon. It sometimes includes the appendix. There are usually numerous blood vessels giving it a congested appearance.

The colon is often bound to the parietal peritoneum, which sometimes produces kinking or obstruction to it or to the appendix. Dr. Jabez N. Jackson has emphasized the importance of these bands as a cause of local subacute or chronic symptoms, such as pain, tenderness, constipation, mucous colitis, meteorism, gastric symptoms and neurasthenia.

It is doubtful whether this contention is true except in instances wherein definite kinking or obstruction may be demonstrated by roentgenography or at operation. Consequently, the treatment of this condition is ordinarily unnecessary unless there is evidence of kinking or obstruction.

When treatment is indicated it should consist of division of the adhesions and peritonization of all denuded surfaces, if possible. In addition, the appendix should be removed and the abdomen thoroughly explored for other pathologic changes.

It is thought by some authors that these membranes which occur also in other locations on the colon and in the abdomen are due to a low grade infection in that region, while other writers believe that they are congenital in origin. The exact cause is not known.

ORAL USE OF OVARIAN PRODUCTS IN MENOPAUSE NOT ESTABLISHED

To the Editor:—I should like to know the present status of the oral use of ovarian products in the treatment of neurotic manifestations of menopause.

O. M. UNGER, M.D., Providence, R. I.

ANSWER.—Rational as ovarian therapy may theoretically appear to be in some conditions, the actual results are rarely striking and often nil to the careful observer. Extensive clinical experience has failed to establish the value of the desiccated preparations administered orally. The Council on Pharmacy and Chemistry has omitted all desiccated ovary preparations for oral administration because long extended clinical use has failed to demonstrate the efficacy of the marketed brands of such preparations.

Thyroid extract in small amount, e. g., one-half grain (0.03 Gm.) once or twice daily, may help in the treatment of neurotic manifestations of the menopause. Most of these patients are benefited by outdoor life, free elimination, and abstinence from coffee.

OSTEOMYELITIS OF THE PATELLA

To the Editor:—I have a case of osteomyelitis of the patella in a boy, aged 14 years, due to a puncture wound. The condition was preceded by a large abscess over the knee and at present there is a suppurating cavity in the patella about 1 cm. in diameter. Does the treatment and the reaction to treatment differ from osteomyelitis in any other bone? Apparently the joint beneath is not involved.

M.D., Virgina.

ANSWER.—There are several local conditions that may modify the treatment of osteomyelitis of the patella. The first to be considered is the probable involvement of the prepatellar bursa. Owing to the history of a large abscess over the knee joint, the bursa was probably in the original suppurative process. The bursa was probably involved first, and the osteomyelitis secondary. At the operation, this sac should be dissected out; otherwise, the discharge may continue.

The local osteomyelitis of the patella should be treated, in general, as any osteomyelitis. However, one should be extremely careful in saucerizing and removing the irregular walls of the cavity in the patella to avoid opening into the knee joint, since this might result in at least ankylosis, if sepsis is avoided.

If careful saucerizing of the cavity and removal of the bursa with wide open drainage is done, prompt granulation of the wound should be expected.

HAMMOND'S MIXTURE

To the Editor:—Would you be so kind as to send me the formula of "Hammond's mixture"? I enclose stamped envelop for reply. Should you publish this, please omit my name.

M.D., Iowa.

ANSWER.—The formula for "Hammond's mixture" is:

Pepsin (scale)	12
Wood charcoal U. S. P.	24
Potassium bromide	64
Water to make	250

Pepsin is seldom indicated because the gastric juice usually contains sufficient pepsin for gastric digestion. Charcoal has long been administered in cases of flatulence, the prescribers evidently losing sight of the fact that when thoroughly wet it loses its property of absorbing gases. In view of these two facts, it would appear that the prescription would likely do no more than would a solution of potassium bromide itself.

FORMATION OF ALCOHOL IN THE BODY

To the Editor:—Permit me to add to your answer to Dr. A. D. Bush of Decatur, Ga., on formation of alcohol in body, in THE JOURNAL, August 23. The existence of alcohol in normal tissues was found also by Ford, Landsberg, Reach, Voeltz and Dietrich, Taylor and Schweisheimer (Ford: *New York M. J.* **15**: 561, 1872. Reach: *Biochem. Ztschr.* **3**: 326, 1907. Voeltz and Dietrich: *Biochem. Ztschr.* **40**: 15, 1912. Taylor: *J. Biol. Chem.* **15**: 217, 1913. Schweisheimer: *Deutsches Arch. f. klin. Med.* **109**: 271, 1913). Dr. Bush will find this information in one of the textbooks from which he taught pharmacology (Sollmann's Manual of Pharmacology, ed. 2, p. 651).

AARON LEVINE, M.D., Cincinnati.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 3, 1930. Basic Science. Sec., Mr. Louis E. Grebauer, Little Rock, Ark. Eclectic Board, Little Rock, Nov. 11 and 12, 1930. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith, Ark. Regular, Little Rock, Nov. 11-12, 1930. Sec., Dr. Sam J. Albright, Searcy, Ark. Homeopathic, Eureka Springs, Nov. 11, 1930. Sec., Dr. Allison A. Pringle, Eureka Springs, Ark.

CONNECTICUT: Regular, Hartford, Nov. 11 and 12, 1930. Sec., Dr. T. P. Murdock, 147 W. Main St., Meriden, Conn. Homeopathic, New Haven, Nov. 10, 1930. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

FLORIDA: Jacksonville, Nov. 10-11, 1930. Sec., Dr. W. M. Rowlett, P. O. Box 603, Tampa, Fla.

GEORGIA: Atlanta, Oct. 14-16, 1930. Sec., Dr. B. T. Wise, Americus, Ga.

ILLINOIS: Chicago, Oct. 14-16, 1930. Supt., Mr. P. B. Johnson, Springfield, Ill.

MAINE: Portland, Nov. 11-12, 1930. Sec., Dr. Adam P. Leighton, 192 State St., Portland, Me.

MASSACHUSETTS: Boston, Nov. 12-14, 1930. Sec., Dr. Frank M. Vaughan, 144 State House, Boston, Mass.

MICHIGAN: Lansing, Oct. 14-16, 1930. Sec., Dr. F. C. Warnshuis, 1010 Macabee Bldg., Detroit, Mich.

MINNESOTA: Minneapolis, Oct. 21-23, 1930. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., St. Paul, Minn.

NEBRASKA: Lincoln, Nov. 20-22, 1930. Sec., Mr. Ernest M. Pollard, Lincoln, Neb.

NEVADA: Carson City, Nov. 3-5, 1930. Sec., Dr. Edward E. Hamer, Carson City, Nev.

NEW MEXICO: Santa Fe, Oct. 13-14, 1930. Sec., Dr. W. T. Joyner, 20-21 First National Bank Bldg., Roswell, N. M.

SOUTH CAROLINA: Columbia, Nov. 11, 1930. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia, S. C.

TEXAS: Waco, Nov. 18-20, 1930. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas, Texas.

WEST VIRGINIA: Morgantown, Nov. 20, 1930. Sec., Dr. W. T. Henshaw, Charleston, W. Va.

ADDITIONAL HOSPITALS AND LABORATORIES APPROVED

The Council on Medical Education and Hospitals of the American Medical Association has given its approval to the following hospitals and laboratories since the publication of the last previous list in THE JOURNAL, July 26:

Hospitals Approved for Intern Training:

Holy Cross Hospital, Chicago.
Illinois Masonic Hospital, Chicago.
Silver Cross Hospital, Joliet, Ill.
Charles S. Wilson Memorial Hospital, Johnson City, N. Y.
Troy Hospital, Troy, N. Y.

The following hospitals, which had been approved for interns for a number of years and were omitted from the list printed in THE JOURNAL, Aug. 16, 1930, are again fully approved for interns:

Providence Hospital, Washington, D. C.
Bethesda Hospital, Cincinnati.
Christ Hospital, Cincinnati.
Jewish Hospital, Cincinnati.
St. Mary Hospital, Cincinnati.

Hospitals Approved for Residencies in Specialties:

Peoria Municipal Tuberculosis Sanitarium, Peoria, Ill.
Hurley Hospital, Flint, Mich.
Albany Hospital, Albany, N. Y.
Kings County Hospital, Brooklyn.
Kingston Avenue Hospital, Brooklyn.
Buffalo State Hospital, Buffalo.

Pathologists Conducting Approved Clinical Laboratories:

Thomas Cajigas, M.D., director, Clinical Pathological Laboratory, Washington, D. C.
W. J. Muzzy, M.D., director, El Reno Sanitarium Laboratory, El Reno, Okla.

Ohio July Reciprocity Report

Dr. H. M. Platter, secretary of the State Medical Board of Ohio, reports 43 candidates licensed by reciprocity with other states and 2 by the endorsement of National Board of Medical Examiners credentials at a meeting held July 8, 1930. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1929)	Arkansas
George Washington University Medical School		(1928)	Maryland
Howard University School of Medicine		(1929)	Virginia
Emory University School of Medicine		(1928)	Georgia
Northwestern University Medical School		(1929)	W. Virginia
Indiana University School of Medicine		(1929)	Indiana
State University of Iowa College of Medicine		(1926)	Iowa
University of Kansas School of Medicine		(1929)	Kansas
University of Louisville School of Med.	(1928, 2) (1929, 4)		Kentucky
University of Maryland School of Medicine	(1928) (1929)	(1920)	W. Virginia Maryland
Detroit College of Medicine and Surgery		(1917)	Michigan
U. of Michigan M. S.	(1903) (1924) (1926) (1927) (1929, 2)		Michigan
St. Louis University School of Medicine	(1929, 2)	(1929)	Louisiana Missouri
Columbia University College of Phys. and Surgs.		(1916)	New York
University of Buffalo School of Medicine		(1929, 2)	New York
Hahnemann Med. College and Hosp. of Philadelphia	(1926) Kentucky, (1929) Indiana	(1928)	Penna.
Jefferson Medical College		(1926)	Penna.
Temple University School of Medicine		(1918)	W. Virginia
University of Pennsylvania School of Medicine		(1927)	Penna.
Medical College of the State of South Carolina		(1929)	S. Carolina
Meharry Medical College	(1928, 2) Tennessee	(1922) Alabama, (1924)	Virginia
University of Toronto Faculty of Medicine		(1926)	Michigan
University of Western Ontario Medical School		(1913)	Tennessee

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
University of Pennsylvania School of Medicine		(1924)	N. B. M. Ex.
University of Jena Faculty of Medicine		(1919)	N. B. M. Ex.

Indiana Reciprocity Certificates

Dr. W. R. Davidson, secretary of the Board of Registration and Examination of Indiana, reports 25 permanent certificates and 9 temporary permits issued to physicians through reciprocity with other states from Jan. 1 to April 2, 1930. The following colleges were represented:

College	PERMANENT CERTIFICATES	Year Grad.	Reciprocity with
Georgetown University School of Medicine		(1899)	Iowa
Hahnemann Medical College and Hospital, Chicago		(1906)	Kansas
Loyola University School of Medicine		(1929)	Michigan
Northwestern Univ. Med. School		(1927)	Michigan, (1928) Illinois
Rush Medical College	(1927, 2) (1928, 2) (1929, 2)	(1925)	Minnesota Illinois
University of Illinois College of Medicine		(1929)	Illinois
State University of Iowa College of Medicine		(1923)	Michigan
University of Louisville School of Medicine		(1928, 2)	Kentucky
Johns Hopkins University School of Medicine		(1921)	Ohio
University of Michigan Medical School		(1928)	Michigan
St. Louis University School of Medicine		(1926)	Missouri
Starling Medical College		(1880)	Ohio
Western Reserve University School of Medicine		(1923)	Ohio
Jefferson Medical College		(1912)	Penna.
Woman's Medical College of Pennsylvania		(1924)	Ohio
Meharry Medical College		(1913)	Tennessee
University of Tennessee College of Medicine		(1910)	Tennessee

College	TEMPORARY PERMITS	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Los Angeles		(1918)	California
Howard University School of Medicine		(1928)	Dist. Colum.
Northwestern University Medical School		(1923)	Iowa
Rush Medical College		(1928) (1929)	Illinois
University of Illinois College of Medicine		(1928)	Illinois
University of Minnesota Medical School		(1925)	Minnesota
Albany Medical College		(1908)	New York
University of Budapest Faculty of Medicine		(1915)	Illinois

Colorado April Examination

Dr. William W. Williams, secretary of the Board of Medical Examiners of Colorado, reports the examination held at Denver, April 1, 1930. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Three candidates were examined and passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
University of Illinois College of Medicine		(1929)	87.2*
Harvard University Medical School		(1929)	81.5
University of Pennsylvania School of Medicine		(1928)	89.1

Dr. Williams also reports the endorsement of credentials of 11 physicians at the meeting held April 1, 1930. The following colleges were represented:

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
Hering Medical College		(1899)	Illinois
University of Illinois College of Medicine	(1922) Illinois	(1912)	Wyoming
State Univ. of Iowa College of Med.		(1923) Utah, (1927)	Iowa
Kansas Medical College		(1906)	Kansas
Johns Hopkins University Medical School		(1923)	Maryland
University Medical College of Kansas City, Mo.		(1903)	Kansas
University of Nebraska Coll. of Med.		(1928) Kansas, (1929)	Nebraska
Vanderbilt University School of Medicine		(1924)	Arkansas

* This candidate has received his four year certificate and will receive an M.D. degree on completion of one year's internship in a hospital.

Book Notices

PERNICIOUS ANEMIA. By Leybourne Stanley Patrick Davidson, B.A., M.D., F.R.C.P.E., Lecturer in Systematic and in Clinical Medicine in the University of Edinburgh, and George Lovell Gulland, C.M.G., LL.D., M.D., Consulting Physician to the Royal Infirmary, Edinburgh. With appendix on Dietetic Treatment by Ruth Pybus, Sister Dietitian, Royal Infirmary, Edinburgh. With introduction by Lawrence D. Thompson, M.D., Assistant Professor of Clinical Medicine, Washington University School of Medicine. Cloth. Price, $8.50. Pp. 293, with 30 illustrations. St. Louis: C. V. Mosby Company, 1930.

Recent investigations of fundamental importance dealing with pernicious anemia were doubtless the inspiration for this monograph. The authors have considered critically all of the important contributions concerning this disease, from the earliest description to the recent classic investigations of Peabody, Minot, Murphy, Cohn and Castle. All aspects of the disease are discussed comprehensively, including the historical development of knowledge, the physiology of blood formation and destruction, the pathology and etiology of the disease, and various clinical considerations dealing with the diagnosis, prognosis and treatment. Of unusual interest are the views of the authors concerning the etiology of the disease. They are in accord with the growing opinion in this country as they accept Cohnheim's original belief that the abnormal formation of blood is the primary factor in the disease and reject Hunter's hypothesis, which emphasizes hemolysis as the essential feature. They do not accept completely, however, the observations of Castle, which appear to suggest strongly that the underlying cause of pernicious anemia is an inability of the gastric mucosa to produce a substance which, acting in protein, elaborates an unknown factor controlling the maturation of the red blood cells. The chapter devoted to diagnosis is well presented and, in addition to discussing the usual diseases from which the pernicious anemia must be differentiated, properly emphasizes the confusion that may arise between it and aleukemic leukemia. The section on treatment is well written, and especial attention is given to the use of liver or liver extract, which the authors consider gives entirely satisfactory results without any subsidiary treatment. It does not seem logical, however, as they suggest, to omit the liver therapy temporarily and administer iron. Nor is there convincing evidence to indicate that dilute hydrochloric acid is essential to the treatment. The importance of infection is discussed, as it is known that when such a condition is present the action of liver is less efficient. This applies chiefly to acute infections with a febrile reaction rather than to "sepsis" in the sense of a chronic abscess of the teeth. Blood transfusion is recommended, as it is an emergency measure which maintains life until liver therapy becomes effective. It is difficult to agree with the authors that the combination of transfusion and liver therapy produces a bone marrow stimulation far greater than either procedure alone as evidenced by a greater reticulocyte rise. The latter depends on the initial level of the red blood cell count and it is possible in some instances that transfusions just prior to treatment with liver may diminish the height of the reticulocyte curve. In general, it may be said that the book is thoughtfully and carefully written by observers who are thoroughly familiar with the subject. It is to be commended to those who are especially interested in diseases of the blood as well as to students and practicing physicians.

PHYSIOLOGIE PATHOLOGIQUE, CHIRURGICALE; INFLAMMATIONS, EFFETS DES TRAUMATISMES, RÉPARATION DES PLAIES, GREFFES, MALADIES DES OS, DES ARTICULATIONS, DES VAISSEAUX ET DES NERFS. Par R. Leriche, professeur de clinique chirurgicale à la Faculté de Strasbourg, et A. Policard, professeur d'histologie à la Faculté de Lyon. Paper. Price, 26 francs. Pp. 212. Paris: Masson & Cie, 1930.

This comprises a series of ten brief essays on the pathologic physiology of bones, joints, tendons, muscles, bursae, connective tissue, blood vessels, peripheral nerves, and transplants (grafts) of these tissues. The changes in the subcutaneous tissue caused by trauma and seen in sterile and septic inflammation are reviewed. The discussion of the pathologic physiology of bones and joints is of course based on the authors' humoral theory of ossification and bone absorption. "Anything that produces an active hyperemia in bone could be the origin of a process which some day results in arthritis deformans. Traumatism, infection, malformations, none of these are direct causes. Trauma acts on bone by causing a vasomotor disturbance. If there is infection the bacteria or their toxins do not affect directly the synovia or bone, but only through causing a vascular disturbance; there being a local vasomotor disturbance usually in hyperemia. Once such processes are begun, they progress of themselves." The discussion of the pathologic physiology of peripheral nerves and vessels includes Leriche's recent and well known experimental work on the effect of sympathetic nerve operations on vascular tone. In the pathogenesis of inflammatory edema, a "nervous vasoparietal" factor is emphasized. The final essay, dealing with tissue transplants, is a brief review of the generally accepted principles on the subject. The authors state in the preface that their treatise is an expression of personal opinion and is the result of fifteen years of observation and experimentation. Much that is said, however, coincides with the generally accepted views on the subject. The book is written in the clear concise style typical of the best French works. There are no illustrations nor is there a bibliography. While not intended for students, the work may be profitably read by them for a correlation of certain phases of physiology and surgery. For the surgeon, this book offers an attractive and brief scientific discussion of many problems confronting him in his daily work and presents numerous suggestions for further experimental work.

A HEMATO-RESPIRATORY STUDY OF 101 CONSECUTIVE CASES OF STAMMERING. By Max Trumper. A thesis presented to the faculty of the graduate school in partial fulfillment of the requirements for the degree of Doctor of Philosophy. Paper. Price, $1. Pp. 72, with illustrations. Philadelphia, 1928.

This details a research into the conditions of breathing and of blood in 103 stammerers, of whom 80 were adults. About half of the adults had low vital capacity (the greatest amount of air that can be expired after a maximum inspiration). One third were shallow breathers. "The cases exhibited a correlation between the type of breathing and the red cell count and hemoglobin content." Shallow breathing was compensated by a high red count and high hemoglobin. In some cases, deep breathing compensated for low vital capacity. "When the compensation was adequate, the red cell count and hemoglobin were normal, where incomplete the erythrocytes and hemoglobin were increased." In other cases in which depth of breathing was normal, the blood observations also were normal. Such studies should eventually disclose either a physical correspondence or a difference between the stammerer and the nonstammerer. In this paper a similar study of nonstammerers is not provided for such comparison. Moreover, since confirmed stammerers were studied, whether the abnormal observations, when present, should be reckoned on the side of cause or of effect is not clear. The study is a worthy one and should be continued and extended.

LA RADIOTHÉRAPIE PÉNÉTRANTE. Par MM. Ledoux-Lebard, chargé de cours de radiologie clinique à la Faculté de médecine de Paris, et Étienne Piot, électroradiologiste des Hôpitaux de Paris. Paper. Price, 15 francs. Paris: Gauthier-Villars & Cie, 1930.

This is a delightfully readable and valuable summary of the field of high voltage roentgen therapy. The authors call attention to the fact that high voltage roentgen therapy can be administered with a radiation that is only slightly penetrating and, inversely, that penetrating filtered radiation may be utilized in superficial radiotherapy. He defines high voltage roentgen therapy as that given by utilizing a tension of 200 kilovolts and a filtration of 1 mm. copper with a minimum effective wavelength of 0.17 angstrom unit. To deliver to an organ deeply situated a sufficient radiation to obtain therapeutic action without damaging the skin or intervening organs is the purpose of high voltage roentgen therapy, but this object cannot be truly and completely realized except by utilizing "penetrating" roentgen therapy. The authors propose the classification agreed to by the Commission of Therapeutics of the Society of Medical Radiology of France: for superficial therapy, 50 kilovolts, a 3 mm. aluminum filter, and an effective wavelength of 0.35 angstrom unit; for therapy requiring medium penetration, 150 kilovolts, 0.05 mm. of copper filter, and an effective wave-

length of 0.15 angstrom unit; for penetrating roentgen therapy, 200 kilovolts, 1 mm. of copper or zinc filter, and an effective wavelength of 0.10 angstrom unit. There are chapters on the physiologic and biologic bases, the technic of roentgen therapy and the clinical indications in cancerous and noncancerous diseases, the dose being always expressed in roentgens, the international unit of x-ray dosage. The r universally adopted in Germany and in this country is equivalent to 2.5 r of the French standard.

CLINICAL NUTRITION AND FEEDING IN INFANCY AND CHILDHOOD. By I. Newton Kugelmass, M.D., Ph.D., Sc.D., Associate Attending Pediatrician, Fifth Avenue Hospital. Cloth. Price, $6. Pp. 345, with 37 illustrations. Philadelphia: J. B. Lippincott Company, 1930.

As stated in its preface, this book is intended to supply the general practitioner with information concerning the etiology, diagnosis and treatment of the problems of pediatrics involving nutrition. The first four chapters deal with the normal energy and foodstuff requirements, properties of the foodstuffs, prenatal nutrition, normal breast and artificial feeding, and normal child feeding. In considering the physiology of nutrition, the author reviews various theories and quotes the most recent advances in physiologic chemistry and metabolism. The space given to normal artificial feeding is scanty. There is a short chapter on the alimentary diseases. The nutritional diseases of infancy are designated as acute intestinal indigestion and acute intestinal intoxication. Treatment of these conditions is stressed and is in general sound, although the use of cathartics and a starvation period as long as twenty-four or forty-eight hours might be questioned in some pediatric circles. The chapter on deficiency diseases includes discussions on rickets, scurvy, beriberi, xerophthalmia and acrodynia. Malnutrition and marasmus are included in this chapter, as is dental caries. The chapter on metabolic diseases includes detailed and technical discussions of the acid-base mechanism and alkalosis. These discussions are rather technical and will probably prove too much for the average general practitioner. The diets for obesity and diabetes mellitus are excellent. The nephritides are considered under the general heading of metabolic diseases, but they would perhaps best deserve a separate chapter. Tetany is considered separate from rickets, and the ketogenic dietary treatment of epilepsy is given ample space. The ketogenic diet, as the most rational treatment for chorea, does not meet with universal approbation. The chapter on blood diseases is quite complete; however, the statement that ultraviolet radiation from natural or artificial sources increases the red cells and hemoglobin and prolongs the life of the erythrocytes has not been substantiated experimentally. Hemophilia is generally considered a purely familial disease and is probably uninfluenced by diet. The chapter on diet in infectious diseases is brief and to the point, and the book concludes with tables of various food values. The book is well illustrated throughout and food tables for the various conditions are included in each chapter for ready reference.

ÉTUDES RADIOLOGIQUES SUR LE POUMON ET LE MÉDIASTIN. Par M. de Abreu, de l'Institut Brésilien des sciences et de l'Académie de médecine de Rio. Paper. Price, 50 francs. Pp. 200, with illustrations. Paris: Masson & Cie, 1930.

Here is an attempt to reach more accurate radiologic diagnosis and prognosis by application of mathematical formulas to roentgenography of the chest. The first part deals with roentgenography of the lung. It describes methods for finding the square area of lung lesions and gives a scale of shades determined by the density of shadows cast by normal organs in the thorax. Mathematical formulas are then given by means of which the volume of the lesions may be estimated from their square area and the density as indicated by the shade of the lesions. The author emphasizes the value of serial examinations for prognosis. The second part deals with roentgenography of the mediastinum. The author advances the theory that differences in depth of shadow cast by various mediastinal organs are not due to different densities of the organs, as has been commonly accepted. He asserts that the depth of shadow and its size as well as its definition are determined entirely by the geometric relations existing in the mediastinum and particularly by the proximity of the mediastinal surfaces of the lungs which afford a contrasting surface by means of which definition is obtained with different degrees of clarity according to the angles at which the rays penetrate. He states that he has substantiated this theory by a series of wax models of the mediastinal space. These models were homogeneous throughout; yet films showed virtually the same shadows as are obtained in a normal mediastinum. The third part is a discussion of the possibility of obtaining mathematical knowledge of the blood vessels in the mediastinum and attempts to determine accurately enlargement of the vessels, including the breadth and length of the aortic arch. The book is profusely illustrated with roentgenograms and diagrams showing the geometry of the chest. Numerous equations are given. While some will not agree with the theory ascribing all differences in density in mediastinal pictures to geometric relations alone, there is no doubt that the author has made progress toward greater accuracy in roentgenologic diagnosis and prognosis and the reader cannot fail to be impressed by the bringing together of clinical, pathologic and roentgenologic as well as mathematical data.

LES ALIÉNÉS ET LES CORRECTIONNAIRES À SAINT-LAZARE AU XVII^e ET AU XVIII^e SIÈCLES. Par le Docteur Jacques Vié, médecin des Asiles. Paper. Pp. 251. Paris: Félix Alcan, 1930.

Saint Lazare began in 1124 as a hospital for lepers and later under Vincent de Paul it became the center of the congregation of the mission but continued to receive patients. This book is a study of the great monastery and hospital from 1632 to 1789, during which time it served as an asylum for the mentally diseased and as a house of correction. The methods of placement, classification and treatment are studied in detail. The book should be of much interest to those interested in the history of institutional care of mentally diseased and abnormal persons.

PHYSIOLOGY AND BIOCHEMISTRY OF BACTERIA. Vol. II: Effects of Environment upon Microörganisms. By R. E. Buchanan, Ph.D., Professor of Bacteriology and Bacteriologist of the Iowa Agricultural Experiment Station, Iowa State College, and Ellis I. Fulmer, Ph.D., Professor of Biophysical Chemistry, Department of Chemistry, Iowa State College. Cloth. Price, $7.50. Pp. 709. Baltimore: Williams & Wilkins Company, 1930.

PHYSIOLOGY AND BIOCHEMISTRY OF BACTERIA. Volume III: Effects of Microörganisms upon Environment. Fermentative and Other Changes Produced. By R. E. Buchanan, Ph.D., Professor of Bacteriology and Bacteriologist of the Iowa Agricultural Experiment Station, Iowa State College, and Ellis I. Fulmer, Ph.D., Professor of Biophysical Chemistry, Department of Chemistry, Iowa State College. Cloth. Price, $7.50. Pp. 575. Baltimore: Williams & Wilkins Company, 1930.

These two volumes present an extensive compilation of the literature relating to the physiology of micro-organisms. Volume II deals with the effect of the physical and chemical environment. It presents first of all certain laws relating to rates of reaction. This is followed by sections on the effects of temperature on morphology, metabolism and the various phases of growth and death rates of micro-organisms, the effects of rays and emanations, mechanical pressure, osmotic pressure, surface tension and other physical environments. The section dealing with the chemical environment takes up in turn the effects of such an environment on growth and death rates, the subject of disinfection and disinfectants, the influence of various inorganic compounds and their ions, and the effect of both non-nitrogenous and nitrogenous organic compounds. Volume III covers the subjects of physiologic interrelationships among micro-organisms, enzymes, and the chemical changes produced by micro-organisms in inorganic compounds, in non-nitrogenous organic compounds and in the nitrogenous organic compounds. The scope of these two volumes is enormous and embraces the more fundamental aspects of a large share of the field of microbiology. There is much material collected here which has not heretofore been brought together and the work will therefore serve as a useful and convenient or, indeed, indispensable reference. While it is recognized that any large compilation presents problems in the arrangement of material, it would seem that all of the information on the utilization of the sugars and alcohols, for example, might have been brought together in a section in one volume rather than divided between a section in each of the two volumes. The same holds true for other non-nitrogenous and the nitrogenous organic compounds. To gain a complete picture of the reports on the uses of these substances and their decomposition products, one must consult

both volumes. It is to be regretted, too, that the publishers have not printed the headings of subsections in more conspicuous type. Such points, however, are overshadowed by the really enormous amount of work brought together and summarized with full bibliographies and index. Since the progress of a science is often well served by pausing to review disclosures of the past, bacteriologists will be distinctly indebted to the authors for the production of these volumes.

STEREOSKOPISCHER ATLAS DER ÄUSSEREN ERKRANKUNGEN DES AUGES NACH FARBIGEN PHOTOGRAPHIEN FÜR STUDIUM UND ÄRZTLICHE FORTBILDUNG MIT BEGLEITENDEM TEXT. Lieferung 2. Von Karl Wessely, Professor in München. Boards. Price, 12 marks. Ten plates (11-20). Munich: J. F. Bergmann, 1930.

This atlas is published in ten sections, and the second group of ten pictures which has just appeared includes two which demonstrate the author's treatment of serpiginous ulcer of the cornea. All the photographs maintain the high standard set in the first series, and the next instalment is anticipated with pleasure and certain profit.

Medicolegal

When Damages Are Payable for Fright

(Baltimore & Ohio R. Co. v. McBride (U. S.), 36 Fed. (2d) 841)

McBride was an engineer on one of the defendant's trains. While he was so engaged, a plug blew out of the engine boiler. He was badly scalded and was compelled to jump from the cab, landing between the rails of an adjacent track. He suffered multiple injuries, including a fracture of the left leg. As he lay thus disabled, he was further shocked and terrified by the approach of a through train on the track on which he lay and by calls to stop it. The engine was in fact stopped only a few feet from him. McBride brought action to recover damages, and from a judgment in his favor the railroad company appealed to the U. S. Circuit Court of Appeals, Sixth Circuit.

On behalf of the railroad company it was contended that no causal relation had been shown between the blowing out of the plug and the subsequent fright or nervous shock of the injured engineer; that no damages could be recovered for such unforeseen and unforeseeable results as were claimed to have occurred in the present case; and that the fright and nervous shock being disconnected from the original accident called for the application of the doctrine that no recovery can be had for nervous shock unaccompanied by physical injury.

The legal rule, however, that requires that the accident for which the plaintiff is responsible shall be the proximate cause of the defendant's injuries does not require that the defendant must have been able to foresee the precise injuries which in fact resulted, but only to foresee that results of a generally injurious nature might be anticipated from the negligent act or omission. The question was, said the court, "Did the facts constitute a continuous succession of events, so linked together as to make a natural whole, or was there some new and independent cause intervening between the wrong and the injury?" Viewed in the light of all of the circumstances of the case, severe nervous shock seems not only prospectively probable as a result of the railroad company's negligence, but rather as certain to follow. There was no intervening efficient cause and no break in the chain of causal connection. The final result was in a very true sense foreseeable.

There was no ground for the application of the doctrine that damage from nervous shock, unattended by physical injury, is too remote to support a recovery of damages. Where both the physical injury and the nervous shock are proximately caused by the same act of negligence, there is no necessity that the shock result exclusively from the physical injury. Each forms a part of the natural and indivisible result, and the fact that the plaintiff has suffered physical injury as a part of the aggregate of the attending results precludes the defense that the connection between the negligent cause and the resulting nervous shock is too remote for legal contemplation.

The judgment of trial court in favor of the injured engineer was affirmed.

Public and Private Hospitals Distinguished

(Brister v. Leflore County (Miss.), 125 So. 816)

In July, 1916, the King's Daughters and Sons Circle and the city of Greenwood and the county of Leflore entered into an agreement for the erection of a hospital and for its joint control and management. Later, in order to enlarge the hospital, the voters of the county of Leflore authorized the issuance of bonds to raise $30,000. A taxpayer brought suit to prevent the bond issue, alleging that it would be invalid, because section 183 of the constitution, 1890, forbids any county, city, town or other municipal corporation from making an appropriation or loaning its credit in aid of any railroad or other corporation or association. From a judgment against him, the taxpayer appealed to the Supreme Court of Mississippi, Division B.

If, said the Supreme Court, the corporation sought to be aided is a public corporation, it is not covered by the provisions of the constitution stated; if it is a private corporation, the constitutional inhibition is clear and distinct. The question is, therefore, Is the King's Daughters and Sons Circle a private corporation within the meaning of the constitutional provision stated? Public corporations, the Supreme Court of New York has said, are the instrumentalities of the state (or of a subdivision thereof), founded and owned by it in the public interest, supported (in whole or in part) by public funds, and governed by managers deriving their authority from the state (or from a subdivision thereof). *Van Campen* v. *Olean General Hospital*, 210 App. Div. 204, 205 N. Y. S. 554, 555. The rule is, said the court:

> A corporation therefore is not a public corporation merely because it is founded for a public charity. . . . While an institution founded . . . for purposes of general charity such as a hospital for the poor, the sick, the disabled or the insane may well be regarded as a public institution, yet in the sense of the law a far more limited, as well as a more exact, meaning is intended by a public institution or corporation. 14 Corpus Juris 73.

The ultimate test is this: Is the continuity of the corporation, and its control and management, under the power of the public through public agents who are accountable to the government?

The legislative act authorizing the proposed bond issue provides that the expenditure of the money "shall be under the control of the board of supervisors." When the money was expended, however, it would go into buildings. These, being real estate, would merge into the title now held by the King's Daughters and Sons Circle, and the money would be represented by property the title to which would be in the hands of a private corporation. The stockholders and board of directors of that corporation, being under no legal control by the state or county, would have the full legal power to sell and convey such real estate and to divert it from the public uses for which it was intended. The conclusion is inescapable, therefore, that the appropriation proposed would be an appropriation to a private corporation and in clear violation of the constitution. The fact that the constitution authorizes the legislature to provide for the care of the indigent sick in hospitals does not help the matter. The property of one person may not be taken and given over to another as a pure donation or gratuity, and such taking and giving is no more permissible when it is done under the guise of taxation than it would be if it were done by direct force or violence.

There is, however, said the court, no legal reason why a county, a municipality and a private person or corporation may not, on a joint three-party arrangement, acquire and operate a public hospital, if the arrangement is such that the majority control remains in the public, through responsible public agents or managers, or if the services to be rendered are covered by an obligatory contract so specific in its provisions that it can be enforced in a court of competent jurisdiction by the public authorities. There must, however, be such a just and reasonable relation between the services to be rendered and the payments made as to avoid the charge that a part of the payment made or to be made out of public funds is in fact only a donation or gratuity.

The decision of the trial court was reversed and the cause remanded.

Foreign Body in Bronchus Following Tonsillectomy

(Emery v. Fisher (Me.), 148 Atl. 677)

The defendant, Fisher, had been employed to remove the plaintiff's diseased tonsils. While ether was being administered preparatory to the operation, the patient became cyanotic. The defendant-physician, who was in an adjoining room preparing to perform the operation, was hurriedly called. He used a mouth gag to force the patient's mouth open, to enable him to breathe. Soon after the patient resumed breathing, it was discovered that a rubber tip was missing from the end of the mouth gag. Search for it was unsuccessful. The defendant suspected that it had slipped off, or been pulled off by contact with the patient's teeth, and had been either swallowed or, what seemed less likely, drawn into a bronchus. In the opinion of the defendant, however, good judgment and good surgical practice demanded that, notwithstanding the loss of the rubber tip and regardless of its place of lodgment, the contemplated operation be performed, and he therefore removed the patient's tonsils. After a further search had been made for the rubber tip, without success, the defendant suggested to the patient's attending physician that the patient's stools be carefully examined during the next few days to determine whether or not the tip had passed into the digestive tract, and that the patient be watched for the development of a cough, indicating the presence of the rubber tip in a bronchus. A cough did develop, a roentgenogram was taken, and the tip was discovered and removed. The patient thereupon brought suit against the physician, Fisher, who had performed the tonsillectomy, in the Supreme Judicial Court, York County. The issue submitted to the jury was whether the tip found its resting place in the patient's bronchus by reason of the negligence of the defendant or of an accident not attributable to lack of due care on his part. The patient contended, too, that after the physician-defendant, when about to operate, found that the rubber tip had disappeared and realized the possibility of its lodgment in a bronchus, he should have taken steps immediately to locate it and, having so located it, he should have removed it at once, instead of proceeding with the operation. After a verdict in favor of the patient, the physician appealed to the Supreme Judicial Court of Maine.

It was strongly urged by counsel for the patient that the tip did not become detached from the mouth gag during the emergency caused by the cyanotic condition of the patient, but a fair reading of the record, said the appellate court, established the truth of the defendant's contention that it was lost at that time. There was no evidence that the mouth gag was unfit for use. Assuming, then, that the rubber tip was lost during the emergency, no act of negligence, either of omission or commission, on the part of the defendant caused the injury of which the patient complained. Whether, after having failed to locate the lost rubber tip and suspecting that it might have lodged in a bronchus, the physician should have taken further steps to locate it and, having located it in a bronchus, should have removed it at once, instead of proceeding with the tonsillectomy, was distinctly a matter of judgment for the operating physician. All that was eventually done must necessarily have been done if the tonsil operation had been deferred. The only difference would have been the removal of the rubber tip a few days earlier. The patient, however, suffered no harm from the delay and was subjected to no appreciable damage. All of the experts summoned by the patient united in commending the course which the defendant pursued.

The verdict of the jury apparently rested on no more secure foundation than the facts that the rubber tip found its way into the plaintiff's bronchus and that the plaintiff was thereby subjected to considerable expense and to the annoyance of another operation. Surgeons, however, neither warrant against accidents nor guarantee the results of their operations. Their liability is limited within certain clearly defined lines; a surgeon contracts that he possesses ordinary skill, that he will use ordinary care, and that he will exercise his best judgment in the application of his skill to the case which he undertakes. No claim was made that the defendant in the present case was not skilled in his profession. There was no evidence to warrant the assumption that he did not use ordinary care and exercise his best judgment in the application of his skill to the case. An unfortunate result, however, arising from an accident, excusable under the circumstances, was made the basis of a finding of negligence. While the Supreme Judicial Court does not review questions of fact, yet when a conclusion of fact is without support in evidence, a question of law is raised, which the court may properly consider. To justify the court in sustaining a verdict, "there must be substantial evidence in support of the verdict—evidence that is reasonable and coherent, and so consistent with the circumstances and probabilities in the case as to raise a fair presumption of its truth." A verdict of a jury on matters of fact cannot be the basis of a judgment where there is no evidence to support it, or when the jury had made inferences contrary to all reason and logic. The appeal of the physician-defendant, therefore, from the verdict in favor of the patient was sustained.

Workmen's Compensation Acts: Detachment of Retina Not Due to Accident.—The claimant, a carpenter, fell from a stepladder early in May, 1928, while engaged in his work. He continued to work that day and for about three weeks thereafter, although his eye was bloodshot after the accident and there was some pain and blurring of vision. Then, May 23, he became suddenly blind in his right eye. The state industrial board awarded compensation, and the employer appealed. The difficulty, said the Supreme Court of New York, Appellate Division, Third Department, is to identify the blindness with the accident. Such identification must depend on medical testimony. Eminent oculists have been called, however, but none is able to state with reasonable certainty that the fall from the stepladder was the cause of the claimant's condition. Some of these oculists have eliminated practically every other cause, but for some unexplained reason they hesitate to express a definite opinion that the origin of the detached retina was in the accident. They say it is "possible," but go no further. In the absence of other evidence leading to a reasonable conclusion, this is not sufficient. The finding of the state industrial board that the detachment of the retina arose naturally and unavoidably from the accident is therefore not sustained by the evidence. The award was reversed and the claim remitted to the board.—*Wood v. W. E. Joyce Co., Inc., et al. (N. Y.), 239 N. Y. S. 110.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, October 27-31. Dr. W. P. Wherry, Medical Arts Building, Omaha, Secretary.

American Academy of Physical Therapy, Boston, October 22-24. Dr. Thomas L. Smyth, 111 North Eighth Street, Allentown, Pennsylvania, Secretary.

American Association of Railway Surgeons, Chicago, November 5-7. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American College of Surgeons, Philadelphia, October 13-17. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Hospital Association, New Orleans, October 20-24. Dr. Bert W. Caldwell, 18 East Division Street, Chicago, Executive Secretary.

American Public Health Association, Fort Worth, Texas, October 27-31. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.

Association of American Medical Colleges, Denver, October 14-16. Dr. Fred C. Zapffe, 25 East Washington Street, Chicago, Secretary.

Central States Pediatric Society, Memphis, Tenn., November 7-8. Dr. A. H. Parmelee, 310 South Michigan Boulevard, Chicago, Secretary.

Delaware, Medical Society of, Dover, Oct. 14-15. Dr. W. O. La Motte, Medical Arts Building, Wilmington, Secretary.

Interstate Postgraduate Medical Association of North America, Minneapolis, October 20-24. Dr. W. B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.

Medical and Surgical Association of the Southwest, El Paso, Texas, November 6-8. Dr. W. Warner Watkins, Box 1587, Phoenix, Ariz., Secretary.

Mississippi Valley Conference on Tuberculosis, Rockford, Ill., October 14-16. Dr. Robinson Bosworth, Box 1005, Rockford, Secretary.

Missouri Valley, Medical Society of the, Des Moines, Iowa, October 15-17. Dr. Joseph D. McCarthy, 107 South Seventeenth Street, Omaha, Secretary.

Radiological Society of North America, Los Angeles, December 1-5. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.

Southern Medical Association, Louisville, Ky., November 11-14. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Virginia, Medical Society of, Norfolk, October 21-23. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

5: 685-826 (Aug.) 1930

*Bundle-Branch Block with Short P-R Interval in Healthy Young People Prone to Paroxysmal Tachycardia. L. Wolff and P. D. White, Boston, and J. Parkinson, London, England.—p. 685.
*Subsequent Course and Prognosis in Coronary Thrombosis. L. A. Conner and E. Holt, New York.—p. 705.
*Excitatory Process Observed in Exposed Human Heart. P. S. Barker, A. G. MacLeod and J. Alexander, Ann Arbor, Mich.—p. 720.
Coronary Arteries of Dog. R. A. Moore, Cleveland.—p. 743.
Variations in Heart Block Sometimes Attributed to Supernormal Recovery Phase. D. Luten and S. Pope, II, St. Louis.—p. 750.
*Epinephrine Test in Hypertension. J. Jensen, St. Louis.—p. 763.
Elasticity (Extensibility) of Aorta of Human Beings. W. M. Yater, Washington, D. C., and I. W. Birkeland, Rochester, Minn.—p. 781.
*Polypoid Fibroma of Left Auricle (So-Called Cardiac Myxoma) Causing Ball-Valve Action: Case. G. H. Houck and G. A. Bennett, Boston.—p. 787.
*Aneurysms of Bronchial Arteries. M. Jacobi, New York.—p. 795.
Plateau R-T in Case of Lobar Pneumonia. M. C. Shearer, New York.—p. 801.

Bundle-Branch Block with Short P-R Interval in Healthy Young People Prone to Paroxysmal Tachycardia.—Eleven cases are reported by Wolff et al. of an unusual cardiac mechanism, heretofore undescribed as such, consisting of functional bundle-branch block and abnormally short P-R interval, occurring mostly in otherwise healthy young people with paroxysms of tachycardia or of auricular fibrillation. From a study of eleven cases they conclude that: (*a*) Aberrant ventricular complexes of the type generally recognized as indicating bundle-branch block may occur in healthy people with normal hearts. (*b*) Vagal stimulation is capable of altering markedly the form of the ventricular complex and may be responsible for the occurrence of complete bundle-branch block curves in apparently normal hearts at normal rates of beating. (*c*) Vagal stimulation may shorten markedly the P-R interval without the production of auriculoventricular nodal rhythm, and without dislocating the auricular pacemaker. (*d*) In the group of cases reported, paroxysmal tachycardia and auricular fibrillation are associated with the nervous control of the heart. (*e*) The recognition of functional bundle-branch block is of considerable practical importance. The combination of intraventricular block with abnormally short P-R interval, interchangeable with normal ventricular complexes with longer P-R interval (reversion spontaneous or following exercise or atropinization) in healthy young people with paroxysmal tachycardia (or auricular fibrillation) is distinctive. (*f*) This mechanism is apparently not indicative of disease of the heart.

Course and Prognosis in Coronary Thrombosis.—The records of 287 cases of coronary thrombosis have been studied by Conner and Holt with respect to the clinical course of the disease from the time of the first attack. Approximately 85 per cent of these cases were found in men and 15 per cent in women. An analysis of the age incidence at the time of the first attack discloses the fact that in one third of all the cases the first attack occurred before the fifty-first year and in three fourths of the cases before the sixty-first year. It seems evident, therefore, that coronary thrombosis must be regarded as essentially a disease of early middle life rather than of elderly life as it is usually held to be. Evidence of an arterial hypertension was found in 34 per cent of the cases; of syphilis in 14 per cent, and of diabetes in 10 per cent. Of the 287 patients studied, 117 are known to be living and 142 to have died. The immediate mortality in the first attack was 16.2 per cent. Of 117 patients who recovered satisfactorily from the first attack, 75 per cent were in good health at the end of one year; 56 per cent at the end of two years; 21 per cent at five years, and 3.4 per cent at ten years. One patient remained in good health for seventeen years and died in a second attack eighteen years after the first. In 62 per cent of the patients the first attack supervened, without antecedent circulatory symptoms, in persons who had no reason to doubt the integrity of the heart. A single attack only of thrombosis is recorded in 67 per cent of all the patients; two attacks occurred in 24 per cent; three attacks in 4 per cent, and from four to seven attacks in 5 per cent. Of the patients having but a single attack, one half are living and one third are in good health. Among the patients having two or more attacks, the time interval between the first and the second attack was less than one year in half of the cases and in the other half varied from one to eighteen years. Signs of arterial embolism appeared forty-nine times among forty-two patients. Twenty-eight of the embolic attacks involved the systemic arteries and twenty-one the pulmonary artery. Although the immediate mortality in attacks of coronary thrombosis is higher when the initial symptoms are severe than when they are mild, yet almost one third of the patients who recovered from the attack had symptoms of very severe character.

Excitatory Process Observed in Exposed Human Heart.—A study of the arrival of the excitation process at a number of points on the surface of the human heart with reference to the beginning of R in lead II was made by Barker et al. It was found that the order of excitation differs in some respects from that found by Lewis and Rothschild in the dog. The earliest points were on the anterior surface of the right ventricle near the atrioventricular border. Their results suggest that the conducting tracts in the right ventricle of man may differ from those of the dog. The curves produced by stimulation of various points on the surface of the human heart were recorded in the three standard leads taken simultaneously. These curves indicate that: (*a*) Ventricular premature contractions of right ventricular origin are represented in the electrocardiogram by ventricular complexes in which the chief initial deflection is upward in lead I. Ventricular premature contractions of left ventricular origin are represented in the electrocardiogram by ventricular complexes in which the chief initial deflection is downward in lead I. (*b*) The clinical electrocardiograms at present ascribed to block in the right branch of the bundle of His indicate block in the left branch, and vice versa. (*c*) In so-called left ventricular preponderance the electrocardiogram is dominated by right ventricular effects and vice versa.

Epinephrine Test in Hypertension.—Under approximately standard conditions, series of subcutaneous injections of 1 cc. of epinephrine were given by Jensen to a number of normal persons, patients with hypertension, and others in whom the reaction was thought to throw light on the phenomena observed in hypertension. Persons with normal cardiovascular systems responded with a slow rise and a subsequent slower decrease of pressure. While the height of the excursion was but slightly accentuated after subsequent injections, the time consumed in reaching the maximum height of the pressure was markedly shortened. The cases of hypertension fell into two groups which were clinically indistinguishable. In the first group no definite change could be ascribed to the first injection of epinephrine, while the other cases of marked hypertension responded with a brisk and intense increase of systolic blood pressure. When the test was repeated, all the patients with hypertension responded with intense rises of pressure. In cases of early or intermittent hypertension the conditions found were like those of the former group of advanced hypertension, but less pronounced. Statistically it was found that the ratio of the difference and of the probable error of difference between the standard deviations from the average readings following the first and the repeated injections of epinephrine was significant in the first group, in those hypertensive patients in whom the response was absent on the first injection. The diastolic pressure decreased after all the injections, but the time required to return to normal was longer in the patient with hypertension than in the normal person. It was not influenced by repetition of the test. The increase in heart rate and the occurrence of cardiac irregularities were not influenced by the state of hypertension or by repetition of the test. The blood pressure reaction of epinephrine in hypertension did not depend on the level of the blood pressure, the size of the heart, presence or absence

of kidney disease, or the level of the blood calcium. No satisfactory explanation could be offered for the absence of response in some individuals with hypertension or for the change in response between first and subsequent tests. The clinical epinephrine reaction is not due to peripheral vasoconstriction. In fact, a vasodilatation is present which indicates that the systolic rise is of cardiac origin. The intense increase in the patient with hypertension is thought to be related to the general instability of the hypertensive blood pressure. This instability is briefly discussed and considered mathematically.

Polypoid Fibroma of Left Auricle Causing Ball-Valve Action.—A case of intracardiac tumor arising from the interauricular septum is reported by Houck and Bennett. They have not found any record of this condition ever having been diagnosed before necropsy. A tumor of this type may produce a ball-valve action in every way similar to the action of a ball thrombus.

Aneurysms of Bronchial Arteries.—A case of multiple, saccular aneurysms of the bronchial arteries is reported by Jacobi, the first recorded in the literature. Death resulted from asphyxia caused by tracheal occlusion by the aneurysm. The etiology is shown definitely to be syphilitic, a rather unusual finding in aneurysms of smaller arteries. Many other small and several medium sized arteries showed syphilitic involvement varying from the early lesions of endarteritis of the vasa vasorum and lymphocytic perivascular infiltration of the adventitia to extensive destruction of the elastic lamellae. The rôle of the supporting external structures in the formation of the aneurysms of the intercostal arteries and aorta in this case is indicated.

American Journal of Diseases of Children, Chicago

40: 227-464 (Aug.) 1930

*Encephalography in Cases with Fixed Lesions of Brain. B. Crothers, E. C. Vogt and R. C. Eley, Boston.—p. 227.
Giant Cells in Inflammations of Lung in Children. R. A. Moore and P. Gross, Cleveland.—p. 247.
*Buffer Capacities of Various Milks and Proprietary Infant Foods. G. E. Holm and B. H. Webb, Washington, D. C.—p. 260.
Insensible Perspiration in Infancy and Childhood. S. Z. Levine and E. Marples, New York.—p. 269.
*Nutrition of Children on Mixed and on Vegetable Diet. D. E. Lane and F. H. Bosshardt, Berkeley, Calif.—p. 285.
*Acute Obstructive Laryngitis. W. L. Bradford and A. D. Leahy, Rochester, N. Y.—p. 298.
*Nutrition of Sick Children. M. G. Peterman and I. Hug, Milwaukee. —p. 305.
*Normal Closing Time of Foramen Ovale and Ductus Arteriosus. A. Christie, New York.—p. 323.
*Chondrodysplasia: Unusual Case. W. P. Blount, Milwaukee.—p. 327.
Subcutaneous Rupture of Stomach. S. J. Seeger and I. Schulz, Milwaukee.—p. 334.
Subcutaneous Fat Necrosis. J. Epstein and L. Barash, New York.—p. 337.
Nephrosclerosis (Chronic Interstitial Nephritis) in Childhood. A. G. Mitchell, Cincinnati.—p. 345.
Benjamin Rush, 1745-1813. J. Ruhräh, Baltimore.—p. 389.

Encephalography in Cases Presenting Fixed Lesions of Brain.—Crothers et al. believe that encephalography should be used before final judgment is passed on the future of children severely handicapped by fixed cerebral lesions, unless other less severe methods are demonstrably adequate. Encephalograms, properly taken and intelligently interpreted, give definite information of positive value in at least half of properly selected cases. In the remainder, negative facts of importance can be established.

Buffer Capacities of Various Milks and Proprietary Infant Foods.—An attempt has been made by Holm and Webb to evaluate quantitatively the buffer intensities of various milks and infant foods over the range of hydrogen ion concentration concerned in digestion. They conclude from their results that in the majority of cases of infant feeding the nature of the curds formed is of greater importance than is the buffer capacity.

Nutrition of Children on Mixed and on Vegetable Diet.—From the results of feeding tests made by Lane and Bosshardt there appears no reason to conclude that a scientifically balanced milk diet, including 1½ pints to 1 quart of milk a day per child, produces greater growth or better health in growing children from 7 to 15 years old than a scientifically chosen vegetable diet furnishing a smaller amount of calcium. If there is a greater calcium storage on the milk diet than on the vegetable diet, a supposition which does not appear justified by the gains in height and weight or the other data here presented, there still would seem to be no reason for assuming such excessive storage advantageous for the general health of growing children. Excessive calcium storage may possibly obscure a clear perception of the function of other factors in the diet, whether it is that of the calory-producing nutrients, the various minerals and vitamins or the acid-base equilibrium of the blood. A diet of vegetable foods carefully selected with special reference to the quality and quantity of the protein, low in fat, comparatively high in carbohydrate, with adequate amounts of the various minerals and high in vitamins produced in ten weeks as satisfactory increase in all physical measurements observed in children from 7 to 15 years old, and in most cases greater increases, than a similarly carefully planned milk and meat-containing diet.

Acute Obstructive Laryngitis.—From the bacteriologic study made by Bradford and Leahy of sixty-six cases, it is suggested that green-producing cocci may be of etiologic significance in certain types of acute obstructive laryngitis simulating laryngeal diphtheria.

Nutrition of Sick Children.—Peterman and Hug state that the food requirements of children with chronic bone disease, especially tuberculous disease, are not high but should exceed 50 per cent above the basal requirements calculated on the basis of the "normal" or expected average weight and the height. For patients from 2 to 6 years of age, more than 90 calories per kilogram of body weight should be given; for those from 6 to 12 years, more than 80 calories per kilogram are necessary. These requirements are approximately those for normal, well, active children, but they must be supplied to the sick children in bed. The effects of concentrated foods and further modifications of the diet are being studied. Dental caries did not develop in any child.

Normal Closing Time of Foramen Ovale and Ductus Arteriosus.—An attempt was made by Christie to standardize the knowledge of the normal anatomic closure of the foramen ovale and of the ductus arteriosus by an anatomic and statistical method. This closing time of the foramen ovale was found to occur prior to twelve weeks after birth in 87 per cent of 590 normal hearts of infants from 1 day to 1 year of age. Closure of the ductus arteriosus occurred prior to eight weeks after birth in 88 per cent of 558 normal hearts of infants from 1 day to 1 year of age.

Chondrodysplasia.—The case reported by Blount belongs to one of the rarer forms in which multiple enchondromas are present with no exostoses in the patient or the family.

American J. Roentgenol. & Rad. Therapy, New York

24: 113-224 (Aug.) 1930

Roentgenologic Study of Breast. S. L. Warren, Rochester, N. Y.—p. 113.
Subphrenic Abscess. E. P. McNamee, Cleveland.—p. 125.
Roentgen Appearance of Chest of New-Born Infant. J. T. Farrell, Jr., Philadelphia.—p. 140.
Development of Marble Bones. A. H. Pirie, Montreal, Canada.—p. 147.
Uncoiled Aorta. D. S. Dann, Kansas City, Mo.—p. 154.
Treatment of Angina Pectoris by Paravertebral Short Wave Radiation. M. L. Sussman, Boston.—p. 163.
Therapeutic Lead Poisoning. S. Withers, Denver.—p. 169.
Relative Value of Radium in Treatment of Cancer. M. J. Sittenfield, New York.—p. 180.
Sarcoma of Prostatic Area in Infant Aged Four Months: Case. G. Raap, Miami, Fla.—p. 185.

American Journal of Syphilis, St. Louis

14: 289-432 (July) 1930

Acquired Immunity in Syphilis. A. M. Chesney, Baltimore.—p. 289.
Problem of Early Genital Lesions. O. C. Wenger, A. A. Surgeon and H. O. Proske, Hot Springs, Ark.—p. 313.
Trypanocidal and Spirocheticidal Activity of Bayer 205 (Germanin). J. A. Kolmer, Philadelphia.—p. 320.
Malaria Treatment of Paresis. W. Freeman, Washington, D. C.—p. 326.
Effect of Heat Produced by Ultra-High Frequency Oscillator on Experimental Syphilis in Rabbits. C. M. Carpenter and R. A. Boak, Albany, N. Y.—p. 346.
Provocative Wassermann, Kahn and Vernes Flocculation Tests for Syphilis on Identical Specimens of Serum. M. A. Lyons, New York. —p. 366.
Principles Involved in Complement Fixation by Cold and Warm Incubation Procedures. B. S. Levine, Hines, Ill.—p. 378.
Effect of p_H on Third Improved Warthin-Starry Method for Demonstrating Spirochaeta Pallida in Single Sections. R. Farrier and A. S. Warthin, Ann Arbor, Mich.—p. 394.

Archives of Internal Medicine, Chicago

46: 165-360 (Aug.) 1930

*Value of Acid Neutralization in Treatment of Gastric and Duodenal Ulcers. W. L. Palmer, Chicago.—p. 165.
*Laboratory Studies in Epilepsy. J. Felsen, New York.—p. 180.
*Bronchial Asthma: Severe Chronic Intractable Type. I. S. Kahn, San Antonio, Texas.—p. 218.
*Arterial Hypertension: Evaluation of Prognosis. E. J. Stieglitz, Chicago. —p. 227.
Plasma Proteins. H. J. Wiener and R. E. Wiener, New York.—p. 236.
*Postoperative Results in Toxic Goiter. N. E. Clarke and I. Black, Detroit.—p. 266.
*Postmortem Blood Chemistry in Renal Disease. S. H. Polayes, E. Hershey and M. Lederer, New York.—p. 283.
Chemistry and Metabolism in Experimental Yellow Fever in Macacus Rhesus Monkeys: I. Concentration of Nonprotein Nitrogenous Constituents in Blood. A. M. Wakeman and C. A. Morrell, New Haven, Conn.—p. 290.
*Fatal Human Anaphylactic Shock: Case. J. G. M. Bullowa and M. Jacobi, New York.—p. 306.
*Influence of Special Breakfast on Basal Metabolism of Patients with Pathologic Condition. C. C. Wang and J. E. Hawks, Chicago.—p. 316.
Intermediate Metabolism of Foreign Sugars. E. H. Fishberg and B. T. Dolin, New York.—p. 321.
Epigastric Pulsation. N. Fukui, Tokyo, Japan.—p. 333.
Gastric Sequelae of Corrosive Poisoning. W. S. Boikan and H. A. Singer, Chicago.—p. 342.

Value of Acid Neutralization in Treatment of Gastric and Duodenal Ulcers.—Palmer presents data bearing on the rôle of free gastric acidity in the rate of healing of gastric and duodenal ulcer. In the experiments made by him, two groups of patients were subjected to substantially identical types of treatment except for the fact that in one, the so-called alkali group, an effort was made to neutralize the free acidity throughout the entire digestive period, whereas in the other, the so-called beef-tea group, gastric secretion was purposely stimulated in order to maintain as high a free acidity as possible. Conclusions were drawn regarding the results in each group by observing the rate of desensitization of the pain-producing mechanism. The most significant result in these experiments is that two thirds of the patients in group 2 became free from spontaneous distress during the period of administration of beef tea and acid-insensitive without alkali therapy, indicating thereby desensitization of the pain-producing mechanism. This indicates that some progress has been made by the reparative processes in the ulcer. Stimulation of gastric secretion by means of the hourly feeding of beef tea did not stop them; it did not stop the natural tendency of the ulcer to heal spontaneously. This constitutes further evidence that, regardless of what the etiology of ulcer may be, and regardless of the cause of chronicity, the natural and usually the dominating tendency in any given ulcer is toward healing. The next most significant observation is that neutralization of the gastric free acidity by means of alkalis definitely increased the rate of desensitization of the pain-producing mechanism. There is reason to think that some correlation exists between this and the healing process, that desensitization signifies some progress toward healing. The conclusion seems reasonable, therefore, that neutralization of the gastric free acidity favors healing. This may be due to protection of the ulcer surface from the destructive action of hydrochloric acid, to decreased gastric emptying time, to diminished spasm, or perhaps to other unknown factors. But, regardless of what the explanation may be, healing apparently proceeded at a faster rate in the alkali group.

Laboratory Studies in Epilepsy.—An intensive laboratory study of seventy-three epileptic patients was made by Felsen and the observations were compared with the more limited investigations of other authors. The data reveal significant variations and suggest a more careful study of individual epileptic patients as a clue to the pathogenesis of epilepsy.

Chronic Intractable Type of Bronchial Asthma.—Kahn concludes that there exists a type of asthmatic person in whom, even in the absence of other complications, antibody formation against allergic antigens or the allergen resistance factor, whatever that may be, is apparently greatly reduced or nonexistent, precisely as is the case analogously in tuberculosis and other bacterial infections. In the absence of antigen reproduction, such as occurs in bacterial infections, there is probably combined with this lowered faculty of antibody formation a definite inability to excrete promptly the toxins elaborated by such allergic antigens following their complete withdrawal. Eosinophilia is usually absent in these cases. The usual diagnostic skin tests cause negative reactions, and if pollens are used, are dangerous. In these cases there is gradual, and at times rapid, development of polyantigenic sensitiveness of high degree. A small but appreciable percentage of these patients recover a certain amount of antibody formation and relief and even freedom from symptoms after many weeks or months of persistent elimination of antigenic contact without the institution of other therapeutic measures. While there is no laboratory proof to support these contentions, the clinical results secured offer rather conclusive proof. There exists no known reason why a patient should not fail to develop antibodies to allergic as well as to bacterial antigens.

Evaluation of Prognosis in Arterial Hypertension.—Stieglitz feels that the prognosis in individual instances of arterial hypertension should be based on several variable factors and does not necessarily coincide with the statistical average prognosis for groups of hypertensive persons. The factor of age is not of great moment. The factor of the etiologic background accounting for the hypertension is significant. Likewise are the status of the cardiac and of the renal reserve of importance. Most significant of all is the stage at which the vascular disease is encountered; whether the hypertension is of purely spastic origin or whether slight, moderate or extensive fibrotic changes have already taken place in the vessel walls. Spasticity and hypertonicity, no matter how severe, are amenable to therapy. Fibrotic scarring and replacement of degenerated muscle cells are not amenable to therapy but represent permanent injury. The degree of relaxability can be determined easily and rapidly by noting the response of the arterial tension to the inhalation of amyl nitrite. The type of response encountered has proved of great assistance in properly evaluating the individual prognosis. In fifty instances, only one incorrect preliminary prognostic opinion was given. Relaxability of the arterioles is evidence of vascular disease relatively early in its pathogenic development, whereas the rigid fibrosed arteries of arteriolar sclerosis respond little or not at all. This procedure makes it easier to answer the patient's justified request for specific information relative to his outlook.

Postoperative Results in Toxic Goiter.—Clarke and Black have studied 181 cases of thyroidectomy according to the age of the patient, distribution and duration and incidence of symptoms. It was determined that 70 per cent of the patients lost weight while 30 per cent showed no change or even gained weight. The most common pathologic process in the thyroid was colloid adenoma, hyperplasia being much less frequent. The mortality rate was 6 per cent. The pulse rate at admission, minimum before and maximum after operation with the rate at discharge were ascertained. These showed a definite division into groups according to the mean and extreme rates, the ratios conforming closely to those observed for the weight changes. Seventy-six cases were studied after an average elapsed time from operation of two and one-half years. Only 58 per cent of the patients had gained weight; the pulse rate was below normal in a group approximating the same number who had not gained weight since operation. The blood pressure showed an unusually high number who had developed abnormally high blood pressures since operation. They found 16 per cent well, 40 per cent moderately improved, 34 per cent slightly improved and 10 per cent showing definite recurrences. Hence they consider surgical intervention unsatisfactory in a large group of these patients but consider that its benefits could be improved by more accurate preoperative selection, the weight being an accurate preoperative guide. Surgical intervention is only substitutional therapy, substituting the dominant myxedema for the less dominant state of hyperthyroidism and not in any way altering the real constitutional condition but only alleviating it. A perfect surgical result depends on the chance development of equilibrium between the hyperthyroidism and the developed myxedema. The disease hyperthyroidism is primarily a problem of the internist, and its ultimate real cure will come through real control of the constitutional condition and not by surgically interrupting one link or substituting another less disturbing symptomatic or neutralizing disease.

Postmortem Blood Chemistry in Renal Disease.—From a postmortem study of the creatinine and urea content of the blood specimens in 100 cases, Polayes et al. conclude that blood

creatinine determinations are often helpful as an aid in determining the status of the renal function during life. The urea values are not as helpful as the creatinine figures. A creatinine content of 4 mg. or more per hundred cubic centimeters of blood obtained post mortem indicates marked creatinine retention during life and therefore severe renal insufficiency.

Fatal Human Anaphylactic Shock.—A case of fatal anaphylactic shock after a single injection of diphtheria antitoxin is reported by Bullowa and Jacobi. The pathologic anatomy consisted chiefly of acute pulmonary emphysema, dilatation of the right side of the heart, general venous stasis and visceral congestion; the left side of the heart is contracted and empty. Microscopically, the changes consisted chiefly of thickening of the arteriolar wall, especially in the lungs. These anatomic changes are presented as corroborative morphologic evidence to substantiate the experimental work on the pathogenesis of fatal anaphylactic shock reviewed. This consisted chiefly in overfilling of the lungs, which remained distended, a drop in the peripheral blood pressure with a concomitant rise in the pulmonary arterial pressure, a progressive weakening of cardiac contraction and a slowing and final stopping of the heart, with the right auricle and ventricle in diastole and very much dilated. The cases of anaphylactic shock that came to necropsy are reviewed in detail. Doubt is cast on the rôle of the thymus in such cases.

Influence of Special Breakfast on Basal Metabolism of Patients.—Two series of experiments were conducted by Wang and Hawks on three normal persons and on twenty-three subjects with a pathologic condition, including twelve patients with thyrotoxicosis. The basal metabolism varied from + 74.6 to — 14.6 per cent from the Harris-Benedict standard. In the control series two tests were made one hour apart, while in the second a special breakfast recommended by Benedict was given after the first test, followed by another test an hour later. The average difference of the two tests in the control series was 0.08 per cent, while that of the second series was 0.53. On the basis of their experimental data, they conclude that the special breakfast may be used with advantage to patients who are extremely nervous and who have late appointments for their basal metabolic test.

Colorado Medicine, Denver

27: 319-364 (Sept.) 1930

Intracranial Injury of New-Born. E. S. Watson, Lusk, Wyo.—p. 323.
Diagnosis and Management of Contracted Pelvis. M. Weiner, Denver.—p. 330.
Major Indications for Cystoscopy. H. T. Low, Pueblo.—p. 334.
Cotton Mather and Smallpox. W. S. Dennis, Denver.—p. 337.
History and Prospect of Denver Sanatorium Association. A. Mining, Denver.—p. 339.
Pachymeningitis Hemorrhagica Interna. J. R. Jaeger, Denver.—p. 343.
Phlegmonous Funiculitis. F. E. Rogers, Denver.—p. 346.

Georgia Medical Association Journal, Atlanta

19: 315-362 (Aug.) 1930

Anatomy Before Vesalius. J. C. Weaver, Atlanta.—p. 315.
Andreas Vesalius: 1514-1564: Sketch of His Life. M. Wattles, Atlanta.—p. 318.
Published Works of Vesalius. M. M. Tye, Atlanta.—p. 321.
Influence of Vesalius. S. R. Roberts, Atlanta.—p. 324.
The Medical Library. W. Kiser, Atlanta.—p. 330.
Mutual Problems in Care of Our Sick. J. Van De Vrede, Atlanta.—p. 332.
Weather Thermometer in Bladder: Case. E. Floyd and J. L. Pittman, Atlanta.—p. 349.
Value of Organization. E. C. Thrash, Atlanta.—p. 349.

Journal of Nervous & Mental Disease, New York

72: 241-368 (Sept.) 1930

Problem of Anatomy of Schizophrenia. W. Spielmeyer, München.—p. 241.
Brown-Séquard Paralysis: Two Cases (Poliomyelitis and Cord Syphilis). G. B. Hassin, F. J. Kendrick and E. J. Connelly, Chicago.—p. 245.
What Can Public Welfare Accomplish for State Institutions? F. J. Farnell, Providence, R. I.—p. 251.
Postencephalitic Parkinsonism with Psychosis. B. J. Alpers, Philadelphia.—p. 257.
*Affectepilepsy and Hystero Epilepsy. J. Notkin, New York.—p. 266.

Affectepilepsy and Hystero-Epilepsy. — The thirteen cases cited by Notkin include three so-called hystero-epilepsies, two alcohol epilepsies, three poriomanic affectepilepsies and five other cases of psychopaths with so-called affectepilepsy. On the basis of this material, an attempt is made to show the possibility of an hysterical manifestation transforming itself into a more severe organic reaction of an epileptic nature. Considerable doubt is expressed as to the ultimate deterioration in all cases of the idiopathic variety of epilepsy. Bratz's theory of the nonoccurrence of petit mal attacks in affectepilepsy is dispelled by a critical consideration of his material and citation of his own cases. The mechanism of the attacks in affectepilepsy is explained by the process of spontaneous hyperpnea frequently seen in psychopaths during affective states. Attempt is also made to explain the phenomenon of functional aphonia by the same mechanism. Vasomotor disturbances during emotional states are also offered as a mechanism for the attacks, and the possibility of overflow of senso-affective stimuli from the thalamus is suggested. Alcohol is the expression of psychopathy or may be an incidental manifestation in patients with affect-epilepsy. Alcohol itself may produce convulsions as a toxic agent or by causing biochemical alterations. The suggestion to omit all the various classifications is made and to consider one cryptogenic group of convulsive states with a multiplicity and variety of etiologic factors in addition to the "something" which gives rise to the convulsive attacks.

Kansas Medical Society Journal, Topeka

31: 273-310 (Aug.) 1930

Students' Health Services in Universities. R. I. Canuteson, Lawrence.—p. 273.
County Health Officer. W. K. Johnson, Garnett.—p. 278.
Psittacosis in Kansas. S. A. Sandoer and C. E. Coburn, Kansas City.—p. 280.
Cesarean Section. L. Leverich, Kansas City.—p. 284.
Podalic Version. E. A. Reeves, Kansas City.—p. 285.
Forceps. G. H. Smith, Kansas City.—p. 287.

Maine Medical Journal, Portland

21: 133-152 (Aug.) 1930

Curious End-Results. J. A. Spalding, Portland.—p. 134.
Viewpoints on Industrial Surgery. O. F. De Veaux, Bingham.—p. 138.
Syphilis and Society. E. W. Gehring, Portland.—p. 142.

Michigan State M. Soc. Journal, Grand Rapids

29: 627-690 (Sept.) 1930

Birth Injuries from Standpoint of Orthopedist. C. E. Badgley, Detroit.—p. 627.
Birth Injuries from Standpoint of Obstetrician. L. E. Daniels, Detroit.—p. 631.
Birth Injuries from Standpoint of Pediatrician. J. C. Montgomery, Detroit.—p. 634.
Birth Injuries from Standpoint of Ophthalmologist. P. Heath, Detroit.—p. 638.
Complete Anuria Following Pregnancy Relieved by Decapsulation of Solitary Kidney: Case. H. E. Randall, Flint.—p. 639.
Fractures from Standpoint of Industrial Physicians. C. D. Selby, Toledo, Ohio.—p. 641.
Plan for Control of Uncomplicated Diabetes Mellitus. D. P. Foster and W. L. Lowrie, Detroit.—p. 646.
Academic Colors. F. C. Warnshuis, Grand Rapids.—p. 651.
Michigan's Department of Health. C. C. Slemons, Lansing.—p. 652.

Military Surgeon, Washington, D. C.

67: 277-418 (Sept.) 1930

Evacuation of Wounded from Cavalry Commands. R. P. Williams.—p. 285.
Dr. Chases Pulajanes. H. W. Jones.—p. 297.
Hypersensitiveness to Cotton: Case. J. W. Smith, Jr.—p. 317.
Electricity, Roentgen Ray and War Surgery. O. F. Scott.—p. 321.
Hanger for Lyster Bag. M. L. Todd.—p. 329.
Electrocardiography. H. C. Michie.—p. 331.
Extraction of Arrow Head: Case. W. Clowes.—p. 346.

Northwest Medicine, Seattle

29: 343-394 (Aug.) 1930

Finances of Our State Association. H. D. Spencer, Idaho Falls, Ida.—p. 343.
Prophylactic Gastrostomy. E. P. Quain, Bismarck, N. D.—p. 346.
Broadening Field of Neurosurgery. G. W. Swift and P. G. Flothow, Seattle.—p. 352.
Active Immunization Against Diphtheria. T. A. Ellison, St. Anthony, Ida.—p. 360.
Treatment of Cardiac Irregularities. W. J. Kerr, San Francisco.—p. 363.
Pancreatitis. A. S. Lobingier, Los Angeles.—p. 366.
Diabetes. I. C. Brill, Portland, Ore.—p. 368.
Cerebrospinal Meningitis: Treatment by Cisternal Puncture. A. L. Balle, Seattle.—p. 371.
Poliomyelitis: Is 1930 Bringing It to the Pacific Northwest? S. M. Creswell, T. J. Porro, C. E. Wallace, Tacoma, Wash.—p. 374.
J. A. W. Hedenus of Dresden. W. J. Stater, Portland, Ore.—p. 377.

Public Health Reports, Washington, D. C.

45: 1763-1826 (Aug. 1) 1930

Decrease of Hookworm Disease in United States. C. W. Stiles.—p. 1763.
Proposed Morbidity Reporting Area. R. C. Williams.—p. 1781.

45: 1927-2011 (Aug. 22) 1930

Physical Impairments and Occupational Class. E. Sydenstricker and R. H. Britten.—p. 1927.
Acute Response of Guinea Pigs to Vapors of Some New Commercial Organic Compounds: V. Vinyl Chloride. F. A. Patty, W. P. Yant and C. P. Waite.—p. 1963.

Radiology, St. Paul

15: 339-436 (Sept.) 1930

Study of Base of Skull: Deep Perisinusitis. G. E. Pfahler, Philadelphia.—p. 339.
Modification of Biologic Reaction of Living Tissue to Roentgen Radiation by Physical and Chemical Agents. J. R. Carty, New York.—p. 353.
Idiopathic Ulcerative Colitis. E. E. Cleaver, Toronto, Ont.—p. 360.
Gastro-Intestinal Obstructions. S. Brown, Cincinnati.—p. 364.
Healing in Bone Tuberculosis. M. B. Hanson and I. Fenger, Minneapolis.—p. 374.
Roentgenologic Studies on Physiologic Motor Phenomena. H. A. Jarre, Detroit.—p. 377.
Effects of Light on Skin. H. J. Parkhurst, Toledo, Ohio.—p. 395.

Rhode Island Medical Journal, Providence

13: 113-126 (Aug.) 1930

Teaching Clinics in Vienna. H. C. Messinger, Providence.—p. 113.
Pneumo-Encephalography. F. J. Farnell, S. F. H. Howes and J. B. Hudson, Howard.—p. 115.

South Carolina Medical Assn. Journal, Greenville

26: 195-218 (Aug.) 1930

Myocardial Failure. R. J. Coney, Cheraw.—p. 197.
Proper Care of Food. M. Woodward, Lexington.—p. 201.
René Theophile Hyacinthe Laënnec. C. W. Evatt, Greenville.—p. 203.
Cyanosis in Infants. W. Weston, Jr., Columbia.—p. 206.
Noninfectious Factors in Etiology of Sinus Diseases. R. A. Fenton, Portland, Ore.—p. 210.

Southern Medical Journal, Birmingham, Ala.

23: 777-868 (Sept.) 1930

Granulomatous and Ulcerative Lesions of Female Genitalia. J. C. Burch, Nashville, Tenn.—p. 777.
Repair of Old Lacerations at Time of Delivery. W. T. Pride, Memphis, Tenn.—p. 781.
Chronic Ulcerative Colitis: Etiology. R. R. Kracke, Emory University, Ga.—p. 785.
Punch Operation: Presentation of New Method of Fixation of Vesical Orifice. D. M. Davis, Baltimore.—p. 789.
Diverticulum of Ureter. W. L. Grantham, Asheville, N. C.—p. 792.
Surgical Suggestion for Glaucoma. M. E. Brown, New Orleans.—p. 797.
*Tuberculosis and Uncinariasis: Sixty-Eight Cases. C. D. Colby and K. Schaffle, Asheville, N. C.—p. 801.
*Regional Anesthesia in Treatment of Fractures and Dislocations. J. D. Highsmith, Fayetteville, N. C.—p. 807.
Fractures of Shaft of Femur. D. Eve, Jr., Nashville, Tenn.—p. 813.
Statistics in Fracture Work. R. B. Slocum, Wilmington, N. C.—p. 814.
*Synovial Fluid in Infectious and Neuropathic Arthritis. A. R. Shands, Jr., Durham, N. C.—p. 818.
*Empyema in Children: Thirty-Six Cases Treated by Tidal Irrigation and Suction. D. Hart, Durham, N. C.—p. 823.
*Bath Pruritus: Cause and Cure. T. Gaines, Mobile, Ala.—p. 829.
Diagnosis and Treatment of Gastro-Intestinal Diseases. J. C. Johnson, Atlanta, Ga.—p. 833.
*Etiologic Types of Heart Disease in Professional Men with Special Reference to Physicians. E. F. Horine and M. M. Weiss, Louisville, Ky.—p. 838.
*Malnutrition. J. C. Eby, Plaquemine, La.—p. 842.
Lingua Nigra: Case. R. S. Spray, Morgantown, W. Va.—p. 844.
*Treatment of Stricture of Urethra with Bipolar Current. G. R. Livermore, Memphis, Tenn.—p. 849.
Hysteria with Extensive Urticaria and Paroxysms of Choking as Major Symptoms: Case. L. A. Golden, Birmingham, Ala.—p. 850.
*Simplified Method of Blood Chemistry Analysis. J. Matthieu, Miami, Fla.—p. 851.
Two Additional Years in College Versus Two More Years in Hospital. W. C. Davison, Durham, N. C.—p. 851.
Significance of Symptoms in Medical Teaching. R. H. Oppenheimer, Atanta, Ga.—p. 855.

Tuberculosis and Uncinariasis.—Sixty-eight cases are presented by Colby and Schaffle, in forty-three of which both hookworm disease and tuberculosis were present, while there were twenty-five cases of uncinariasis which had been referred with a diagnosis of tuberculosis.

Regional Anesthesia in Treatment of Fractures and Dislocations.—Nerve block anesthesia is preferred by Highsmith over general narcosis and local infiltration anesthesia in the treatment of fractures and dislocations. Thirty-five cases are reported.

Synovial Fluid in Infections and Neuropathic Arthritis.—A report of the bacteriology and cytology of the synovial fluid in 125 cases of arthritis is given by Shands. There were 105 patients with chronic infectious arthritis. Streptococci were recovered from the synovial fluid in 26.7 per cent of this number. The total percentage of positive joint cultures was 38.1. Of the twenty-eight positive cultures of streptococci, twenty-three were of the viridans type. The average white cell count and the average percentage of polymorphonuclears was distinctly higher in the group in which positive cultures were obtained. Studies were made on the synovial fluid of four acute gonorrheal joints, four joints with acute synovitis, and two infectious joints of miscellaneous grouping. There were ten patients with neuropathic arthropathies, nine of whom had definite Charcot joints. Bacteria were recovered from the synovial fluid of four of this number. Two of the three positive Charcot joint cultures were *Streptococcus viridans*. The cytologic studies in this group were very similar to those of the chronic infectious arthritic joints with negative cultures.

Empyema in Children Treated by Tidal Irrigation and Suction.—Thirty-six children (fifteen years or less of age) have been treated by Hart by tidal irrigation, with five deaths. All of the fatal cases were in a serious condition at the time of operation, while four of the five were apparently hopeless. Each of the four patients who died in the hospital had a bilateral empyema. The larger number of patients were in the younger age groups (72 per cent 5 years of age or less) where the mortality is usually high. Fifteen of these patients were 2 years of age or younger, with one death in the hospital, giving a hospital mortality of 7 per cent. No patient in this age group came to necropsy with an empyema that had not been diagnosed and drained. In the same age group during the preceding twelve years there was a 40 per cent mortality among operative cases; 25 per cent came to necropsy undiagnosed and 10 per cent of the patients died without operation, after a diagnosis had been made by thoracentesis. The organisms were diverse, the pneumococcus type I and the influenza bacillus apparently causing the most serious infections. The complications not referable to the method of treatment have been numerous, diverse, and often multiple. The complications referable to the method of treatment have been almost negligible. One patient developed a superficial abscess, secondary to an osteomyelitis of the rib, seven months after discharge from the hospital. No other patient has shown any trouble or symptoms referable to the empyema. No patient has been discharged from the hospital with a draining sinus. The duration of the drainage has been greatly reduced. No patient has developed a chronic empyema.

Cause and Cure of Bath Pruritus.—Gaines explains the neurogenic mechanism of this condition and relates his treatment, which consists of measures aimed at restoring the activity of the sweat glands—having the patient submerge in very hot water; remain until perspiration is well established; emerge and dry quickly in a warm room free of draft; avoid friction with towel and don his clothes while his skin is still moist. As the patient continues to escape his dreaded paroxysms, not only is the emotional factor eliminated but the irritability of his skin from repeated rubbing is allayed.

Etiologic Types of Heart Disease in Professional Men.—A selected group of 163 professional individuals was studied by Horine and Weiss. There were 99 physicians, 26 clergymen, 20 attorneys and 18 dentists. They found that the etiologic types of heart disease as encountered in the learned professions do not differ from the types found in the lay population. Clinical evidence is presented to show that a diagnosis of hypertensive heart disease may be made even in the presence of a normal or subnormal blood pressure. The presence of peripheral arteriosclerosis of itself does not justify the diagnosis of arteriosclerotic heart disease. The coronary basis of angina pectoris is stressed. Patients with certain functional heart disturbances resulting from a lowered basal metabolic state should be placed in the hypothyroid heart group. The average physician with heart disease is a cooperative patient.

Malnutrition.—Eby noted marked improvement in undernourished and underweight children following a three months period during which each child in the nutritional clinic in the various schools was given two glasses of milk and two bananas in addition to his regular lunch during the school day.

Treatment of Stricture of Urethra with Bipolar Current.—Livermore uses the bipolar current in all urethral strictures which do not promptly respond to dilation. The electrode is applied to the stricture through the urethroscope, the bipolar current turned on and the strictured band or bands thoroughly fulgurated. It has been his practice to fulgurate at one point, endeavoring to apply the electrode entirely across the strictured tissue. In a week or ten days, sounds are passed.

Simplified Method of Blood Chemistry Analysis.—The procedure employed by Matthieu is as follows: One part of oxalated blood is added to nine parts of the reagent. It can be filtered immediately. The filtrate can be used exactly in the same way as the one obtained by Folin's method. The reagent has the following composition: Ten Gm. of sodium tungstate is dissolved in 1,000 cc. of fifteenth normal sulphuric acid. The solution is stable for at least three months. Sometimes a slight precipitate occurs after a few days, but this does not interfere with the method. In this case the reagent should be shaken before being used. It is recommended to cover the surface with some toluene.

United States Vet. Bur. M. Bull., Washington, D. C.

6: 733-836 (Sept.) 1930

*Group Psychic Treatment of Dementia Praecox by Lectures in Mental Reeducation. E. W. Lazell.—p. 733.
Faulty Union of Fractures. J. Shearer.—p. 748.
*Tuberculous Cavitation. A. Blumberg.—p. 753.
*Malarial Treatment of Paresis. M. B. Holmes.—p. 761.
Treatment of Neurosyphilis. I. Kimbell.—p. 766.
Phases of Roentgen Diagnosis of Pulmonary Tuberculosis. J. J. Peters.—p. 772.
Value of Roentgen Ray in Diagnosis, Treatment and Prognosis of Pulmonary Tuberculosis. E. A. Montague.—p. 777.
Artificial Pneumothorax in Pulmonary Tuberculosis. L. D. Riggs.—p. 780.
Treatment of Chronic Arthritis. N. C. Trauba.—p. 784.
Emotions. H. G. Clarke.—p. 787.
Angina Pectoris. L. J. Godbey.—p. 790.
Ringworm or Tinea Infection of Toes. C. G. Beckett.—p. 793.
Rectal Fistula: Operative Care of Cases. J. B. Warden.—p. 799.
Successive Bilateral Spontaneous Pneumothorax of Indeterminable Origin. E. B. Miller.—p. 802.
Transposition of Thoracic and Abdominal Viscera. F. B. Nather.—p. 805.
Gastric Carcinoma Simulating Typhoid Fever. C. W. Rhea.—p. 806.
Suppurative Phlebitis of Femoral Vein. R. E. Baker.—p. 809.
Facial Paralysis Cured by Dental Treatment. L. W. Whitaker.—p. 811.

Psychic Treatment of Dementia Praecox by Lectures.—Lazell is convinced that major neuropsychiatric conditions, such as hyperthyroidism, epileptiform convulsions, dementia praecox of the hebephrenic form, anxiety neuroses and the manic-depressive groups not only are curable by the lecture method but also are curable when the lectures are given to groups of patients. The best results have been obtained in those patients who have been hospitalized over a considerable period of time, who are under control and who have attended at least two series of lectures. The treatment should extend over at least six months, with a close following up during the first few months after return to civil life. The group method is the only practical and successful method of approach in the treatment of neuropsychiatric cases in which large numbers of patients are involved. The group-lecture method is of the highest importance in solving the greater problems of the public mental health. It should be extended to reform and industrial schools, to state hospitals for the mentally disordered, and to penitentiaries. Psychopathic clinics should be opened in all large centers of population to assist the great numbers of borderline cases before they have broken completely and become psychotic.

Tuberculous Cavitation.—In a series of forty-three patients dying of pulmonary tuberculosis and coming to necropsy, Blumberg says 92 per cent showed cavities. Cavitation was bilateral in 63.2 per cent, and unilateral in 36.8 per cent. Involvement of both upper lobes and the left lower lobe existed in 68 per cent. Intestinal tuberculosis was a complication in 81.87 per cent, laryngeal tuberculosis was found in 15.8 per cent, and spontaneous pneumothorax was present in 6.4 per cent. Healed and healing lesions were found in patients who died with advanced pulmonary tuberculosis. Roentgenologic evidence over three and one-half years demonstrated that pulmonary cavities may disappear and show no recurrence. This is the case when the prevailing type of reaction to the disease is overwhelmingly fibrous. From this it can be assumed that these cavities had healed, in view of the fact that healing was evidenced in cases at necropsies. Deposits resembling epithelium were found to line some cavities. Some cavities remain stationary without manifestating clinical activity.

Malarial Treatment of Dementia Paralytica.—Holmes has given eighty-one inoculations to fifty-eight patients. Two patients also contracted malaria. Intravenous inoculation was practiced when possible, the intramuscular route being second choice. The amount of blood used varied from 1 cc. to as much as 25 cc. in one case, the usual amount being from 5 to 6 cc. It was not found necessary to take the blood from the donor during a paroxysm; blood taken at any time was effective. The patients were not selected, except that only those who were in fair to good physical condition were treated. Tertian malaria was used as far as possible; however, this report includes a number of patients who had estivo-autumnal malaria. All of these patients had had some and most of them a great deal of antisyphilitic treatment before their inoculation with malaria. From a clinical standpoint 21 patients showed no improvement or continued to deteriorate; 1 patient died; 21 showed slight improvement, 12 showed moderate improvement, and 3 showed marked improvement. Serologically, blood Wassermann tests were not affected. The spinal fluid globulin showed no change. The spinal cell count was unaltered in 36 cases, there was a slight reduction in 5, a moderate reduction in 3, marked reduction in 2, a slight increase in 1, and a moderate increase in 1 patient. The spinal fluid Wassermann test showed no change in 26 cases, slight modification in 17, moderate improvement in 3, and marked improvement in 1; it was slightly more positive in 1 patient. The colloidal gold curve showed no change in 18 cases, slight improvement in 19, moderate improvement in 7, and in 2 patients showed a slight change for the worse. It was the experience that the most favorable results could be expected in the manic types and in those patients who were given early treatment. Not much can be expected in old markedly deteriorated cases. Any improvement made was noted within a period of two or three months, and usually within a few weeks.

West Virginia Medical Journal, Charleston

26: 449-512 (Aug.) 1930.

Aspects of Gastric Surgery. R. J. Wilkinson, Huntington.—p. 449.
Removal of Tonsils by High-Frequency Currents. M. F. C. Zubak, Wheeling.—p. 454.
Acute Craniocerebral Injuries: Diagnosis and Treatment. J. G. Lyerly, Richmond.—p. 460.
Irritable Colon. R. J. Condry, Elkins.—p. 464.
Consideration of Nephrosis. M. I. Mendeloff, Charleston.—p. 469.
Celiac Disease. G. C. Hodges, Kilsythe.—p. 471.
Why Nursing Standards. M. M. Maloney, Fairmont.—p. 473.
Thinking Nucleus on Crippled Children. A. T. Post, Clarksburg.—p. 474.
Indolent Ulcer with Peculiar Bacteriologic Findings: Case. B. C. John and R. S. Spray, Morgantown.—p. 476.
Tetanus: Case. G. T. Conley, Williamson.—p. 477.
Hodgkin's Disease. F. S. Harkleroad, Harvey.—p. 478.
Congenital Absence of Anus: Spontaneous Formation of Outlet in Scrotum. H. M. Hall, Wheeling.—p. 479.
Raynaud's Disease. M. Barber, Charleston.—p. 481.
Jamaica Ginger Paralysis. C. J. Burns, Columbus, Ohio.—p. 481.

Wisconsin Medical Journal, Madison

29: 419-488 (Aug.) 1930

Nephritis. R. H. Major, Kansas City, Kan.—p. 419.
Id. H. R. Wahl, Kansas City, Kan.—p. 424.
Intracranial Tumors of Childhood. L. Davis, Chicago.—p. 429.
Mental Depression. J. C. Hassall, Oconomowoc.—p. 433.
Aids to Diagnosis of Tuberculous Meningitis. W. S. Middleton, Madison.—p. 438.
Principles of Roentgen Therapy: VIII. Roentgen Therapy in Gynecology. E. A. Pohle, Madison.—p. 442.
Diagnostic Problem. L. M. Warfield, Milwaukee.—p. 446.
Gastric Ulcer Simulating Gallstone: Case. P. F. Greene and E. A. Schmidt, Madison.—p. 447.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Diseases in Childhood, London

5: 237-294 (Aug.) 1930

*Asthmatic Child. G. W. Bray.—p. 237.
*Pulmonary Lesions in Rheumatism. L. Findlay.—p. 259.
Infantile Type of Gaucher's Disease. A. Moncrieff.—p. 265.
*Infection Due to Salmonella Type Dublin: Three Sporadic Cases. H. R. Souper, J. Smith and J. A. Stephen.—p. 271.
*Hemoglobinuria in New Born. J. Smith.—p. 275.
*Results of Decapsulation in Nephritis. G. Campbell.—p. 283.

Asthmatic Child.—By way of prophylaxis, Bray urges that intermarriage between allergies should be discouraged. Children of allergic parents should be watched from birth. Bronchitic attacks in eczema or prurigo children should be regarded as potential asthma; coughs should be quickly investigated as well as sneezing, wet noses, or coryza on the slightest provocation. Furniture and bedding for these children should be of the simplest kind. As inhalant sensitization is acquired, kapok should substitute feathers or hair as bedding; furs and pets should be restricted. At the onset of any symptoms that may be of an allergic nature, thorough examination and testing both of the skin reactions and of the gastric contents should be advised. Septic foci, as teeth, adenoids and tonsils, should be remedied, and early breathing exercises and proper convalescence arranged after the infective diseases of childhood.

Pulmonary Lesions in Rheumatism.—In twenty-five cases of the rheumatic infection reviewed by Findlay there was a pulmonary complication and definite evidence of a rheumatic carditis. In sixteen of the cases the cardiac lesion was pericarditis with effusion. In nine of these sixteen cases the condition was one of effusion into the pleural sac. In eight of the cases there was endocarditis. In three of these cases of rheumatic endocarditis there was a left-sided pleural effusion. In the whole series of cases the pleural effusion has in the majority of cases been situated on the left side. The pleural effusion occurs most frequently at the left base and should always be suspected when the percussion note is impaired at the left base, even if the respiratory murmur is intensely tubular in character and râles are present. Pulmonary lesions in rheumatism are of the nature of (*a*) an intercurrent disease (lobar pneumonia) or (*b*) a terminal hypostatic or bronchopneumonia complicating cardiac disease.

Infection Due to Salmonella Type Dublin.—The three cases cited by Souper et al. make a total of five cases encountered in Aberdeen since 1925. The first recognized case occurred in a man, aged 38, the second in a girl, aged 2 years, and of the three cases now recorded, two occurred in infants, and one in a boy aged 5 years. All must have had a septicemia, since in three cases the organism was isolated from the blood, in one case in which the blood cultures were inadequate the organism was isolated from the urine, and in the fifth case from the cerebrospinal fluid, which, presumably, became infected secondarily from the blood. Two out of the five patients died. In four of the cases the home conditions were investigated, but no other case of illness had occurred in any other member of the various families. Further, the fifth case actually occurred in a hospital ward in which there were eighteen other infants. Here a complete investigation was made of the feces and urine of five members of the nursing staff and of all other patients in the ward, but the results were entirely negative. If milk had been the vehicle of infection in the fifth case, then only one case occurred out of a total hospital population of some 350 children and adults.

Hemoglobinuria in New-Born.—Infective hemoglobinuria of the new-born is suggested by Smith as a suitable designation for this disease. Experimental work on the excretion of hemoglobin in rabbits and the deposition of hemosiderin in the cells of the convoluted tubules is confirmed. The pathology of renal obstruction in this and other forms of hemoglobinuria is surveyed and suggestions for treatment made.

Results of Decapsulation in Nephritis.—An analysis is made by Campbell of twenty-three cases of subacute nephritis in children in whom decapsulation of the kidneys had been performed because of failure to respond to medical measures. Of these twenty-three patients, twelve have either completely or in great part recovered. Examination of the records failed to reveal any common factor that might be of assistance in the recognition of a case suitable for operation. From data recorded it cannot be concluded that the ultimate result in a case of subacute nephritis is influenced by the operation of decapsulation. Certain cases do show definite improvement after operation, this improvement being reflected principally in disappearance of edema. There is no evidence that improvement in kidney function follows as a result of the operation.

British Medical Journal, London

2: 237-272 (Aug. 16) 1930

*Massive Collapse of Lung (Active Lobar Collapse). J. M. W. Morison.—p. 237.
*Case of Lipoid Nephrosis: I. Clinical and Biochemical. H. Moore and W. R. O'Farrell.—p. 242.
*Id.: II. Pathologic. R. A. Q. O'Meara.—p. 243.
*Insoluble Precipitates in Diphtheria and Tetanus Immunization. A. T. Glenny.—p. 244.
*Tetany After Exercise: Clinical and Chemical Study of Case. R. D. Lawrence and R. A. McCance.—p. 245.
*Famine Edema. W. R. Aykroyd.—p. 247.
Blood Changes Following Injection of "Sanocrysin" in Pulmonary Tuberculosis. T. A. Hughes and D. L. Shrivastava.—p. 248.
Henoch's Purpura Requiring Surgical Intervention. F. W. Widgery.—p. 249.
Epithelioma of Lip Developing on Site of Recurrent Herpes Simplex. N. Burgess.—p. 249.

Massive Collapse of Lung (Active Lobar Collapse).—Eight cases are cited by Morison. He is certain that, in the examination of the chest, the more one keeps in mind the possibility of active lobar collapse the oftener it will be found, more especially in children and young adults. Active lobar collapse must be clearly differentiated from massive collapse of the lung of a passive character. The function of the musculature of the bronchial tubes may be deranged by various causes acting on the sympathetic and vagal innervation either directly or reflexly. The weight of evidence is in favor of the theory that spasm of the bronchial musculature is the essential feature of active lobar collapse, but the disturbance of the sympathetic innervation must also be taken into account.

Lipoid Nephrosis.—Moore et al. are of the opinion that lipoid nephrosis is in reality a chronic mild glomerulitis. Two bacterial toxins are definitely known to select the glomerulus of the kidney for attack. They are the toxins of the diphtheria bacillus and of the hemolytic streptococcus. The cause of lipoid nephrosis is unknown, but there is justification for suspecting a bacterial origin. One organism, the pneumococcus, suggests itself for study. Many of these patients die of pneumococcal peritonitis.

Insoluble Precipitates in Diphtheria and Tetanus Immunization.—Glenny's experiments show that the immunity produced by the precipitate formed by the addition of alum to tetanus and diphtheria toxoids is greater than that produced by toxoid alone. The increase in certain experimental conditions has reached even a thousand fold.

Tetany After Exercise.—A case of tetany after exercise has been investigated by Lawrence and McCance and found to be due not to the exercise per se but to an alkalemia caused by prolonged (presumably functional) overbreathing after the exercise was completed.

Famine Edema.—The case recorded by Aykroyd was observed at St. Anthony Hospital, North Newfoundland. For a variety of reasons, the poorest Newfoundland families in late spring and early summer may be reduced to a diet made up almost entirely of white flour bread, with scanty additions in the form of molasses, salt meat and salt fish, and little else. At times the additions may run out and the family be reduced to bread and molasses. Such a regimen usually produces beriberi, a common disease in Newfoundland. Newfoundland beriberi is identical with the tropical rice eater's disease, and both wet and dry forms may be observed, the latter being by far the commoner. This patient developed an obscure dropsical condition which followed a long period on an extremely faulty diet. It is peculiar that a patient who had practically lived on dry bread for six months or longer should develop this condition rather than one of the better known deficiency diseases.

Journal of State Medicine, London

38: 435-496 (Aug.) 1930

Reduction of Preventable Disease. H. R. Kenwood.—p. 444.
Some Problems (Old and New) of Seafaring Doctor. H. C. Whiteside.—p. 449.
*Health of Worker of Today. T. Oliver.—p. 454.
Voluntary Worker in Relation to Public Health Service. Lady Keyes.—p. 464.
*Sun Treatment in England. H. Gauvain.—p. 468.
Irradiation of Milk. J. O. Hickman.—p. 476.
Maternity and Child Welfare Service in East London Borough. C. Bennett.—p. 480.

Health of Worker of Today.—Oliver contends that the health of the workers of today is better than it was half a century ago; the conditions under which labor is carried on have improved, the hours of work have been shortened so that the working man has more rest and leisure than previously, and but for the industrial depression matters would have been still better than they are. The one circumstance that stands out prominently and calls for special comment is the lengthened duration of sickness and the greater length of time taken to recover from wounds and fractures than formerly, notwithstanding improved methods of medical and surgical treatment and despite the fact that there has been no corresponding increase in the number of claimants. As the types of illness from which the working classes suffer have not changed and there has been no recognizable impairment of their vital resistance and power of recovery, it is clear that, apart from the aged members, it is not the duration of the illness per se which is the demeaning agent but the period given to convalescence being unduly protracted.

Sun Treatment in England.—Gauvain believes that the August holiday which is enjoyed by the bulk of the population, and which is so often spent at the seaside under conditions different to those of the remainder of the year, is of great help to restore minds and bodies jaded and in need of stimulation and change. Additional exposure to sunlight means an additional tonic and, like all tonics, must be wisely employed and not abused. Not only does it have a beneficial effect on the general physique and on the general power of resistance to disease, but it has an equally beneficial effect on the mind. The sun bather who is benefiting from insolation is always cheerful and happy. None are brighter in their spirits than those who are sun worshippers in the most literal sense, and not only are they more vigorous, more alert, gayer in spirits, but there is a stimulating effect on the mentality of patients receiving insolation. The effect of sun treatment on the nude recumbent patients at Alton and Hayling island was to raise their mental activity on an average of 10 per cent above that of the ordinary child in the physically defective schools who was not able to enjoy insolation. If all the school children had the benefit of at least one or two months insolation annually there is no doubt that it would have a profound beneficial effect on their education generally and the improvement of both their bodies and their minds. Sun treatment, then, is of the nature of a shock treatment, comparable in some ways to protein shock.

Lancet, London

2: 333-382 (Aug. 16) 1930

Syphilis of Heart and Great Vessels. C. F. Coombs.—p. 333.
*Bicolored Guaiac Test for Cerebrospinal Fluid. J. G. Greenfield and R. O. Stern.—p. 339.
*Etiology of Cholecystitis: Bacteriologic Observations. B. Williams and D. G. S. McLachlan.—p. 342.
*Pyrogenetic Action of Sulphur in Olive Oil. W. H. Shilvock.—p. 347.
Sulfosin Therapy in General Paralysis of Insane. W. G. Patterson and S. R. L. Switzer.—p. 348.
Pituitary Cachexia: Case. J. W. Stocks.—p. 349.
*Expulsion of Ectopic Fetus Papyraceus After Uterine Curettage. K. McFadyean.—p. 350.
*Unusual Route of Infection in Cholecystitis. R. Rutherford.—p. 351.

Bicolored Guaiac Test for Cerebrospinal Fluid.—The cerebrospinal fluids of 140 patients with diseases of the nervous system have been examined by Greenfield and Stern by the bicolored guaiac reaction. A Lange colloidal gold test has also been done on each of the fluids for comparison with the new reaction. Their results justify the statement that the bicolored guaiac test is of the same practical value as the Lange test in the laboratory diagnosis of neurosyphilis. The bicolored guaiac test runs parallel with the Lange reaction in that certain cases of disseminated sclerosis give positive results. It differs from the Lange reaction in that negative reactions may be obtained in spite of great protein increase. The ease and certainty with which a good bicolored guaiac suspension can be prepared from stock solutions gives the test a definite advantage over the Lange reaction, since good colloidal gold solutions may be difficult to prepare and there is no satisfactory method of testing them except by their reaction to known specimens of cerebrospinal fluid. The Lange reaction is therefore suited only to laboratories in which a large number of specimens of cerebrospinal fluid are examined. The disadvantages of the test are that a comparatively large quantity, 1 cc., of cerebrospinal fluid is required for the test, and that it is not possible to judge what the final reaction will be under twelve hours, whereas with the Lange reaction a fair estimate may be made after half an hour. For these reasons the authors suggest that this test should replace the Lange test in the routine examination of the cerebrospinal fluid. But when difficulty arises in the preparation of a good colloidal gold reagent, the bicolored guaiac test may be substituted or, owing to its more standard nature, may be used as a control for the Lange test.

Etiology of Cholecystitis.—Material from 106 cases of cholecystitis was examined bacteriologically by Williams and McLachlan. Streptococci have been found in the cystic gland or gallbladder wall in 16 per cent of these and *B. coli* in 20 per cent. Streptococci have been found in the contents in 20 per cent and *B. coli* in 19 per cent. The streptococci isolated have been largely of the type that occur normally in the bowel. No evidence has been obtained that *B. coli* is merely a secondary invader and that the streptococci are the primary invaders. The rôle of both, whether they are primary or secondary invaders, seems to be similar. The organisms isolated have little power of localizing electively in the gallbladder of experimental animals.

Pyrogenic Action of Sulphur in Olive Oil.—Nine cases of dementia paralytica and nine cases of nonsyphilitic functional mental disorder have been treated by Shilvock. No patient has been made worse, either mentally or physically. Abscesses have not appeared at the site of injection. Good pyrexial reactions follow, but their extent may be dependent on the patient, apparently on the activity of the thermogenic center. Thus, one patient regularly had pyrexias of 105 F. with malaria and gave the same response to colsul. Another, however, regularly gave poor pyrexias with malaria but much better with colsul. The pyrexias follow the injection, and there is no delay due to an incubation period. No additional disease is induced nor are agents required to control it. Therefore a febrile state can be induced at any time of the year and the pyrexias can be timed as desired and produced by intramuscular injection. The agent seems to cause a focal reaction in the areas of chronic sepsis. The latter reaction indicates its value and probable mode of action in the treatment of mental disorder.

Expulsion of Ectopic Fetus Papyraceus After Uterine Curettage.—The pregnancy in McFadyean's case was isthmial. The fetus died when 82 days old and was retained until the date of operation, seven weeks later.

Unusual Route of Infection in Cholecystitis.—Rutherford's case was typical. An operation was performed. In apposition with the gallbladder were the cecum and an inflamed appendix. Cholecystectomy and appendicectomy were performed, and the patient made an excellent recovery.

Practitioner, London

125: 257-352 (Aug.) 1930

Some Aspects of Chemotherapy. E. Fourneau.—p. 257.
Clinical Features of Idiopathic Narcolepsy. W. J. Adie.—p. 288.
Pyelography by Uroselectan. R. J. Willan.—p. 296.
Pelvic Joints During and After Parturition and Pregnancy. R. Brooke.—p. 307.
Nervous Dysphagia, with Special Reference to Its Cause. G. Evans.—p. 317.
Early Diagnosis of Primary New Growths of Lung. T. N. Parish.—p. 324.
Technic of Immediate Closure of Empyema (Pneumococcal). F. J. Hathaway.—p. 335.
Incubation Period of Epidemic Encephalitis. H. Mackay.—p. 337.
The Nervous Patient on a Sea Voyage. F. G. MacDonald.—p. 340.

Annales de l'Institut Pasteur, Paris

45: 1-153 (July) 1930

Influence of Calcium on Evolution of Cultures of Anthrax Bacilli. J. Bordet and E. Renaux.—p. 1.
Influence of Calcium on Characteristics of Bacteria. P. Bordet.—p. 26.
Behavior of Rabies Virus in Brain of Rooster and Pigeon. P. Remlinger and J. Bailly.—p. 42.
*Preventive Tuberculosis Vaccination with B C G Vaccine in Kief. M. Nechtadimenko, O. Odrina, M. Syssak and I. Anguenitski.—p. 54.
B C G Vaccine: Further Experimental Studies. B. Elbert and S. Gelberg.—p. 59.
*Harmlessness of B C G Vaccine in Infants. R. Chaussinand and G. Tempé.—p. 65.
*Intramuscular Injection of B C G Vaccine in Children. R. Chaussinand.—p. 71.
Prevention of Tuberculosis by B C G Vaccination in Greece. E. N. Lampadarios.—p. 79.
*Vaccination of Rabbits and Guinea-Pigs Against Cerebral Tetanus. S. Mutermilch and E. Salamon.—p. 85.
Presence and Distribution of Titanium in Bodies of Animals. G. Bertrand and Voronca-Spirt.—p. 102.
Researches on Blood Groups. R. Dujarric de la Rivière and N. Kossovitch.—p. 107.

Preventive Tuberculosis Vaccination with B C G Vaccine in Kief.—In an effort to determine the effects of B C G vaccine, Nechtadimenko et al. conducted a series of experiments on guinea-pigs and rabbits, which they inoculated with from 0.1 to 100 mg. and even 1 Gm. of the vaccine. The injections were given subcutaneously, intravenously and intracardially. From their laboratory tests they conclude that (1) B C G vaccine determines the specific tuberculous process in the organs, but (2) this process normally evolves toward cure except after excessive doses and (3) the lesions thus produced are not reinoculable, or at least in animals in which they are reinoculated, extensive lesions are not produced. Also, 155 new-born infants were vaccinated, 87 of whom lived in a tuberculous environment or in bad sanitary conditions. Most of the children lived more than two and one-half years. Of five deaths, four were due to causes other than tuberculosis. The authors' observations confirmed the harmlessness of the B C G vaccine and established the necessity of isolating the child from all source of contagion during the first month after vaccination. Cases of infection after B C G vaccination were in general mild and the general mortality and the tuberculosis mortality were reduced by the vaccination.

Harmlessness of B C G Vaccine in Infants.—By means of their experiments, Chaussinand and Tempé demonstrated the harmlessness of B C G vaccine given to infants by intraperitoneal, peroral and subcutaneous injections in total amounts varying from 2 to 60 mg.

Intramuscular Injection of B C G Vaccine in Children.—Chaussinand expresses the opinion that the sole advantage of the intramuscular route for injecting B C G vaccine over other methods is the rapid appearance of allergy. Doses of 0.05 or even sometimes of 0.02 mg. generally produce a positive cutireaction at the end of three or four weeks, whereas this reaction appears only toward the sixth week after a subcutaneous injection. Two simultaneous intramuscular injections of 0.025 mg. each would have a beneficial effect on new-born children who cannot be isolated from their infectious surroundings and in whom it is desirable to produce a rapid immunization.

Vaccination of Rabbits and Guinea-Pigs Against Cerebral Tetanus.—Subcutaneous or intraperitoneal vaccination of animals by means of a tetanus anatoxin brings about the formation of tetanus antitoxin in the general circulation. The cerebrospinal fluid of animals thus treated never contains antitoxin. Mutermilch and Salamon also found that the intrameningeal vaccination of animals engenders the formation of antitoxin in the general circulation as well as in the cerebrospinal fluid. Guinea-pigs actively or passively vaccinated either subcutaneously or intraperitoneally usually resist the inoculation of tetanus toxin in the brain. Rabbits, however, are usually sensitive to this inoculation. Animals vaccinated intrameningeally are regularly refractory to the inoculation of tetanus toxin in the brain. The presence of tetanus antitoxin in the cerebrospinal fluid is the sine qua non of the antitetanic neuraxial resistance of vaccinated animals. In those vaccinated intrameningeally the antitoxin is present in the body fluids, while in those vaccinated subcutaneously or intraperitoneally the antitoxin passively penetrates from blood to fluid.

Bulletins et Mém. de la Soc. des Chirurgiens de Paris

22: 389-436 (June 6) 1930

Gynecomastia: Surgical Treatment. Dartigues.—p. 391.
Articular Malformations of Obstetric Origin. R. Massart.—p. 394.
Renal Contusion Followed by Gonococcal Pyonephrosis. A. Lavenant.—p. 406.
Cancer of Thyroid: Total Thyroidectomy. Victor-Pauchet and A. Hirschberg.—p. 413.
Osteosarcoma of Fibula. H. Blanc.—p. 419.
*Exophthalmic Goiter with Marked Exophthalmos. Victor-Pauchet and Le Gac.—p. 422.
Serious Abdominal Disorders Caused by Pin Lodged in Bladder and Appendix: Case. Barbet and Pasteau.—p. 424.
Calculus of Prostatic Cavity After Hypogastric Prostatectomy. G. Lauret.—p. 426.
Foreign Bodies Found in Subdiaphragmatic Digestive Tract of Child: Two Cases. H. Mayet.—p. 429.

Exophthalmic Goiter with Marked Exophthalmos: Case.—The early symptoms in this case had been mistaken for those of diabetes, for which opotherapy and roentgen therapy had proved to be ineffective. Victor-Pauchet and Le Gac performed a two-stage operation with an interval of one and a half months. Immediate notable amelioration of the exophthalmos occurred and the patient's general condition improved markedly.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

(54): 1011-1116 (June 23) 1930

Hypophylaxis and Autophylactic Treatment. E. Feuillié.—p. 1012.
Hereditary Syphilis and Asthma. C. Flandin, E. Maison, P. L. Thiroloix and P. Soulié.—p. 1033.
Treatment of Prolonged Pseudomalarial Septicemia: Case. C. Zœller and B. Noyer.—p. 1040.
Neurosyphilis: Extrapyramidal Syndrome. G. Guillain and P. Mollaret.—p. 1041.
Diphtheritic Paralysis Successfully Treated with Injections of Antidiphtheritic Serum. Monier-Vinard.—p. 1047.
*Sero-Attenuation and Immunity in Measles. R. Debré, H. Bonnet, R. Broca, J. Florand and Cros-Decam.—p. 1055.
Histopathology of Tuberculous Lungs Collapsed by Forlanini Treatment. G. Caussade and P. Isidor.—p. 1062.
Dexiocardia Associated with Bronchial Dilatation and Marked Deviation of Trachea. P. Armand-Delille and S. Develay.—p. 1081.
*Essential Primary and Permanent Arterial Hypertension with Severe Hypertensive Paroxysms. Monier-Vinard and Desmarest.—p. 1084.
Malignant Lymphogranulomatosis: Case. F. Bezançon, Duruy, Delarue and Fouquet.—p. 1099.
Malignant Lymphogranulomatosis: Experimental Study. F. Bezançon, Weismann-Netter, Oumansky and Delarue.—p. 1108.

Sero-Attenuation and Immunity in Measles.—The sero-attenuation method of prophylaxis seems to confer a relatively lasting immunity while the absolute seroprevention method does not, according to the numerous observations made by Debré et al. They also record cases in which the attenuation of the disease by the serum was too great to confer more than a slight immunity. A minimum of clinical manifestations seemed indispensable in order to obtain immunity that was at all lasting. Both the disease itself and a mild, modified form artificially acquired by sero-attenuation appeared to confer relatively lasting immunity. The length of time that the organism remains immune is unknown.

Essential Primary and Permanent Arterial Hypertension with Severe Hypertensive Paroxysms.—In this case of permanent hypertension during the menopause there occurred first every few months, then every two or three weeks, paroxysms of hypertension in which the tension was too high to be measured by the clinical manometer. In spite of this fact, neither capillary rupture nor left ventricular deficiency resulted; only the ascending aorta underwent a circumferential distention. The azotemic level seemed to be connected with the tension, since it rose with the paroxysms and returned to normal in the intervals. In their treatment of this case, Monier-Vinard and Desmarest found that the permanent hypertension was only temporarily influenced by suprarenalectomy. Spinal anesthesia caused a marked and dangerous hypotensive collapse. Chloroform brought only a moderate lowering of the tension. The authors found that roentgen therapy did not at the time modify the tension although it may possibly have ameliorated it slightly later on. The simple removal of 12 cc. of cerebrospinal fluid through lumbar puncture resulted in a lowering of the tension, which was maintained thereafter although at a figure still about normal.

(54): 1117-1158 (June 30) 1930

*Mechanism of Syncope: Rôle of Return Circulation. C. Laubry and A. Tzanck.—p. 1118.
Paratyphoid Spondylitis: Surgical Treatment. H. Dufour, Bréchot and Riom.—p. 1120.
Infectious Icterus Followed by Herpes Zoster in Patient with Hereditary Syphilis. J. Gaté and Giraud.—p. 1123.
Gonorrheal Rheumatism in a Syphilitic Patient. J. Gaté and Giraud.—p. 1125.
Erysipeloid Eruptions in Course of Streptococcemia with Phlebitis of Left Axillary Vein. F. Combemale and A. Breton.—p. 1127.
Variations of Leukocytic Formula Due to Poisons of Sympathetic Nervous System. J. Tinel and J. Henrion.—p. 1130.
Multiple Unilateral Syphilitic Paralysis of Cranial Nerves. Dargein and Plazy.—p. 1140.
*Intestinal Occlusion Caused by Inflammation of Meckel's Diverticulum. F. Trémolières, B. Zadoc-Kahn and Kwong.—p. 1142.
Lesions of Gasserian Ganglions in Paroxysmal Arterial Hypertension. J. Lhermitte, F. Trémolières and P. Véran.—p. 1148.

Mechanism of Syncope: Rôle of Return Circulation.—Cardiac syncope with its consequent drop in blood pressure is ordinarily attributed to a sudden cardiac deficiency and lack of blood in the arterial system. But the absence of blood, in the opinion of Laubry and Tzanck, may be due either to suppression of the cardiac functioning or to arrest of the return of blood from the periphery to the heart. Their experiments showed that the latter eventuality was the more plausible.

Acute Intestinal Occlusion Caused by Inflammation of Meckel's Diverticulum.—In this case a roentgen examination confirmed the diagnosis of acute intestinal occlusion, which operation revealed to be caused by peridiverticulitis. Trémolières et al. emphasize the importance of roentgen examination in the diagnosis. The examination in such cases should be extemporaneous, rapid and without any preparation, and it must be made with the patient in the vertical position.

(54): 1159-1198 (July 7) 1930

Syphilis and Asthma. Lesné.—p. 1162.
Primary Cancer of Lung Simulating Abscess. E. Sergent, Kourilsky, Imbert and Poumeau-Delille.—p. 1163.
Syndrome of Cerebral Hyposystole. J. Hatzieganu and J. Vancea.—p. 1169.
Failure of Late Preventive Treatment of Neurosyphilis. A. Sézary.—p. 1179.
*Familial Neurosyphilis. A. Sézary.—p. 1182.
Necrotic Pulmonary Nodules with Spirochetes. F. Rathery and R. Waitz.—p. 1184.
Insulin in Suspension in Oil. M. Labbé, R. Boulin and Soulié.—p. 1190.

Familial Neurosyphilis.—Sézary does not accept the theory that hereditary nervous syphilis is due to a neurotropic virus distinct from the dermotropic virus of syphilis. He cites the case of a family in which the virus attacked the nervous system of the parents and of one child, sparing the nervous system of the second child but attacking the bones of the nose. The same virus was therefore neurotropic and osteotropic, which proves that it has no definite organotropism.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

56: 817-876 (June 28) 1930

Internal Drainage of Biliary Tract by Means of Rubber Tube. P. Moure and J. Sénèque.—p. 818.
*Preoperative Vaccination in Gastric Surgery. J. Murard.—p. 821.
Volvulus of Right Colon: Detorsion and Appendicostomy. D. Férey.—p. 830.
*Recurrent Dislocation of Shoulder Treated by Elongation of Coracoid Process. P. Wilmoth.—p. 833.
Postpartum Puerperal Infection Increasing After Curettage. G. Loewy.—p. 839.
Local Anesthesia and Bacteriophagia. Jacquemaire.—p. 842.
Hygroma of Serous Bursa of Iliopsoas Muscle. J. A. Phélip.—p. 845.
Osteosynthesis in Fracture of Medial Epicondyle of Humerus. E. Juvara.—p. 847.
Extirpation of Inflammatory Strictures of Rectum. H. Hartmann.—p. 855.
Surgery of Stellate Ganglion. R. Leriche and R. Fontaine.—p. 861.
Testiculo-Epididymal Lesion of Uncertain Diagnosis. Heitz-Boyer.—p. 871.
Regeneration of Neck and Trochanter of Femur After Resection of Head, Neck and Two Trochanters. R. Leriche.—p. 872.

Preoperative Vaccination in Gastric Surgery.—Murard employed preoperative vaccination in eighty-four cases of gastro-enterostomy in an effort to avoid pulmonary complications. Three different vaccines were used. On the whole, the results were somewhat discouraging. In discussing the work, Bazy notes that the absence of specificity in the vaccines usually employed and the difficulty in producing tissue immunity by means of a vaccine injection that does not itself cause a local lesion, seem to indicate that there is no certainty that the organic defenses are sufficiently reinforced by the vaccine to make local complications, pulmonary or other kinds, impossible.

Recurrent Dislocation of Shoulder Treated by Elongation of Coracoid Process.—The dislocation had recurred some sixty times. Wilmoth successfully treated the patient by creating a subcoracoid, bony abutment. The extra-articular graft to lengthen the coracoid process and to constitute a stop to oppose displacement of the humeral head was simply put in place without sectioning the subscapularis muscle or opening the joint cavity.

56: 877-904 (July 5) 1930

Surgical Treatment of Recurrent Dislocations of Shoulder. Mauclaire.—p. 878.
Total Biliary Fistula Following Cholecystectomy. Dujarier and Rouhier.—p. 880.
Inguinal Hernia: Traumatic Rupture of Intestine. R. Chabrut.—p. 883.
*Surgical Treatment of Hydatid Cysts of Spleen. Oulié.—p. 888.

Surgical Treatment of Hydatid Cysts of Spleen.—Basing his conclusions on the observation of eight cases, Oulié considers reduction without drainage the preferable type of operation, reserving splenectomy and marsupialization for special cases.

56: 905-958 (July 12) 1930

Internal Rubber Tube Drainage of Biliary Passages. P. Duval.—p. 906.
Preoperative Vaccination in Gastric Interventions. O. Lambret.—p. 906.
Congenital Pelvic Kidney Observed During Pregnancy. Laffitte.—p. 910.
*Rupture of Spleen and of Left Kidney. P. Goinard.—p. 916.
Pathogenesis of Hydronephrosis Studied by Retrograde or Ascending Pyelography. M. Chevassu.—p. 923.
Diagnosis of Chronic Pancreatitis. R. Grégoire.—p. 945.

Rupture of Spleen and of Left Kidney.—Goinard discusses the cases of four men in whom severe abdominal injury was associated with wounds of the spleen and left kidney. The wound of the spleen in three cases had determined an intraperitoneal hemorrhage. The renal wound had formed a large perirenal hematoma. The condition of the organs was such that splenectomy and nephrectomy were necessary. Rapid death ensued in one instance. In the fourth case, the wound in the spleen with internal hemorrhage was treated by splenectomy. There was also hematuria due to a subcortical renal lesion. There was no perirenal hematoma. The patient died after three weeks as the result of postoperative pulmonary complications. The author suggests the following three possible types of incision: a lumbar incision, a transverse abdominal incision, and a median laparotomy incision.

Gynécologie et Obstétrique, Paris

21: 465-564 (June) 1930

*Krukenberg's Tumor: Origin. A. Babes and Pantz-Lazarescu.—p. 465.
Duration of Pregnancy According to Greek and Latin Writers. E. Lacoste.—p. 489.
Hematometra with Adhesion of Uterus and Small Intestine: Case. A. V. Vikoulof.—p. 500.

Krukenberg's Tumor: Origin.—Necropsy and microscopic examination revealed a tumor with multiple localizations in the majority of the abdominal organs. In the ovary the tumor was of the Krukenberg type. In this case Babes and Pantz-Lazarescu concluded that the ovarian tumor was secondary and metastatic. After analysis of three other recorded cases, the authors agreed that in none of the four was the digestive origin of the tumor admissible.

Journal de Chirurgie, Paris

35: 817-971 (June) 1930

Sacrococcygeal Chordoma: Cases. J. Sénèque and J. P. Grinda.—p. 817.
*Metallic Osteosynthesis: Biologic Considerations. R. Frantz and M. Mayer.—p. 843.

Metallic Osteosynthesis: Biologic Considerations.—In view of the discordance between the perfection of operative means and the uncertainty of prognosis in osteosynthesis, Frantz and Mayer carried out a series of experiments on dogs in order to ascertain precisely the elements to be relied on to establish the relationship between the biologic and the physiologic processes of osteosynthesis. They limited their studies to bone reactions in metallic osteosynthesis for diaphysary fractures and applied to the animals all the metallic devices used on

patients in such cases. In a first series of experiments, penetrating and nonpenetrating metallic prostheses were affixed to nonfractured bones. In the second series they were applied to fractured bones. The authors found that a strictly immobile material was well tolerated whatever its volume, whereas a mobile material provoked bone reactions proportionate to the size of the prosthesis. Mobility of the device results in nonconsolidation of the fracture. Removal of the metallic material then often suffices in order to form a bony callus that will assure healing. The more reduced the supporting points of the prosthesis, the more rigorously must immobilization be maintained after osteosynthesis.

Journal d'Urologie Médicale et Chirurgicale, Paris

29: 537-648 (June) 1930

*Correlation Between Testis and Other Parts of Organism. E. Retterer.—p. 537.
*Diagnostic Errors in Renal Tuberculosis. J. Martin.—p. 556.
Importance of Extrarenal Factors in Phenolsulphonphthalein Elimination. H. Blanc.—p. 571.

Correlation Between Testis and Other Parts of Organism.—Retterer finds that the powerful general action which the testis exercises over all the parts of the organism seems essentially due to the epithelial covering of the seminiferous tubules.

Diagnostic Errors in Renal Tuberculosis.—Martin discusses the difficulties and errors involved in the diagnosis of renal tuberculosis, especially in the cases in which one of the indications may be lacking. He finds that a pyuric kidney, when tubercle bacilli have been found in the total urine, is not necessarily tuberculous; neither is a decided deficiency of urea concentration of one side necessarily an indication of tuberculosis in that kidney. Hence, unless tubercle bacilli are actually found in the urine of a kidney, further explorations and tests should be made even though other signs indicate a diseased organ. Cases occur in which clinical signs point to renal tuberculosis and yet operation reveals no lesions. The author reports one case of this kind, with another in which there were small chronic inflammatory lesions apparently not tuberculous. Yet after operation the symptoms disappeared in both instances.

Paris Médical

2: 53-80 (July 19) 1930

Orthopedics and Child Surgery: Annual Review. Mouchet and Rœderer.—p. 53.
*Heliotherapy, Climatotherapy and Surgery in Treatment of Tuberculous Ostearthritis. C. M. Bufnoir.—p. 68.
Subtrochanteric Osteotomy: Indications and Technic. A. Trèves.—p. 72.

Heliotherapy, Climatotherapy and Surgery in Treatment of Tuberculous Ostearthritis.—In the opinion of Bufnoir, surgical treatment alone is not sufficient to cure bacillary ostearthritis, which is merely a localization of a general disease. It should be accompanied by heliotherapy and climatotherapy, which improve the general condition of the patient and enable him to offer more resistance to the infection. In mild cases, especially among children, helioclimatotherapy alone is sufficient.

Presse Médicale, Paris

38: 921-936 (July 9) 1930

*Gastroduodenal Hemorrhages in Digestive Perivisceritis. M. Chiray and P. Amy.—p. 921.
Life Cycle of Eberth's Bacillus and of Paratyphoid Bacilli. P. Hauduroy.—p. 924.

Gastroduodenal Hemorrhages in Digestive Perivisceritis.—In regard to the etiology of such digestive disorders as hematemesis and melena, Chiray and Amy suggest, in addition to the commonly ascribed causes, splenomegaly, perivisceritis and disturbances in the passage of food through the colon. The pathogenesis of digestive hemorrhages concomitant with splenomegaly is complex. It is certain, however, that in such cases there is a hypertension of the splenogastric circulation, which may be caused by an intrahepatic lesion or a phlebitis of the extrahepatic portal system with the contractility of the spleen as a possible accessory cause. Facts concerning hemorrhages in perivisceritis are not nearly so well known. Digestive hemorrhages occur frequently in secondary periduodenitis with infectious conditions in the organs of the right iliac fossa. Gastritis and congestive, hemorrhagic and sometimes necrosing duodenitis are maintained and aggravated by a perivisceritis developing at the same time. The latter seems to evolve independently in spite of the removal of the infected area that produced it, while repeated interventions in these inflammatory foci serve only to aggravate the peritoneal reactions. The authors cite numerous cases of dyspeptic disorders with lowered general resistance and localized abdominal pains. In all of these, after appendectomy, adhesions occurred in the subhepatic area, followed by bleeding. Successive operations showed no ulceration. Subhepatic peritonitis increased. In such cases perivisceral complications seem to be provoked or at least favored by the first subhepatic operation. Prior to any intervention the authors find an appendectomy necessary, or, if there is no appendix, liberation of the ileocecum preceded and followed by a long rest. Of the digestive hemorrhages linked with disturbances in the passage of food through the colon, little is yet known. In two cases cited by the authors, concomitant infectious phenomena of the right iliac fossa were observed, as well as intoxication disturbances with liver disorders. They call attention to the fact that congestive duodenitis may be provoked by left colic stasis, particularly in dolichocolon.

38: 993-1008 (July 23) 1930

*Amebic Abscess of Lung. M. Labbé.—p. 993.
*Visceral Leukopedesis: Low Leukocyte Count During Digestion. M. Loeper and L. Michaux.—p. 994.
Total Tonsillectomy: Sluder Method. G. Portmann.—p. 997.
Tuberculous Pneumonia: Anatomic and Clinical Study. P. Ameuille, R. Huguenin and P. Foulon.—p. 998.
Gallstones: Formation and Structure. A. Bergeret and J. Dumont.—p. 1002.

Amebic Abscess of Lung.—Labbé reports a case of amebic abscess of the lung with long standing refractory amebic dysentery in which he was unable to isolate the specific ameba. A rapid cure was effected by means of six daily doses of 0.8 Gm. of emetine hydrochloride.

Visceral Leukopedesis: Low Leukocyte Count During Digestion.—The numerical curve of blood leukocytes at the beginning of digestion often falls 1,500 or 2,000 cells per cubic millimeter. Its frequence is such that it should be considered from a physiologic rather than from a pathologic standpoint in the opinion of Loeper and Michaux. The leukocyte afflux is constant in the viscera during the period of digestion. It is high numerically, which accounts for the decrease in the blood leukocytes. The initial leukopenia of digestion is above all a leukopenia of displacement due to the visceral attraction of the white cells. By means of observations of patients and animals the authors found that leukopedesis may occur in the stomach, intestine, liver and kidney. Wine was the medium used to perform the experiments. Gastric, intestinal, hepatic and renal leukopedesis was noted from within one to three hours after ingestion or injection of the wine. Tubages performed on patients with gastric leukopedesis showed 1,500 leukocytes per cubic millimeter at the end of the first hour and 2,000 at the end of the second. Food introduced into the digestive tract determines a leukocytic attraction which in its turn acts as a marked leukotropic agent.

Revue de Chirurgie, Paris

68: 1-84 (Jan.-Feb.-March) 1930

*Mechanophysiotherapy and Surgical Therapeutics. E. Apostoleano.—p. 1.
Primary Tuberculosis of Patella. M. Patel and J. Marion.—p. 49.
*Encephalic Accidents After Ligature or Unilateral Resection of Internal Jugular Vein. J. Creyssel and M. Douillet.—p. 62.

Mechanophysiotherapy and Surgical Therapeutics.—Apostoleano conducted a series of experiments on horses and dogs to ascertain whether delay in cicatrization of wounds was due to overzealous treatment, especially to chemotherapy and bandaging. He found mechanophysiotherapy sufficient for the treatment of wounds. Under its action they healed more quickly and surely. Bandaging is an evil that is, however, necessary in certain well defined cases, but ordinarily the more infected a wound is, the more harmful the results produced by the dressing that covers it. Aerothermotherapy and heliotherapy are more effective healing agents than the usual dressing and antiseptic treatments.

Encephalic Accidents After Ligature or Unilateral Resection of Internal Jugular Vein.—Creyssel and Douillet report three such cases in the course of tumor operations. One

case was followed by transitory disorders of the peripheral circulation, the second by brachial monoplegia, while death ensued in the third case. The authors classify such phenomena in three categories: slight, moderately serious, and fatal accidents. In the fatal case necropsy and microscopic examination showed that it was a question of a venous hypertension process. The insufficiency of the remaining jugular system after a unilateral resection accounts for the fatal venous stasis. If this insufficiency is slight, the resulting disorders are mild or transitory; if more complete, the disorders are permanent and fatal. The frequency of fatal cases is fortunately low. It seems impossible to foresee the occurrence of such accidents. When serious and alarming symptoms develop, the preferable method of checking them seems to be a local venesection, obtained by loosening the ligature of the central jugular end.

Revue Française de Pédiatrie, Paris

6: 265-423, 1930

*Creatinuria and Carbonuria. L. Garot.—p. 265.
Acidosis in Infants. S. E. Burghi.—p. 335. C'td.

Creatinuria and Carbonuria.—From the beginning of his life the nursling eliminates creatine and creatinine in variable proportions, with the latter habitually predominant. The average amount of total creatinine excretion is 24.3 mg. per kilogram of body weight in twenty-four hours. This amount of excretion is independent of the nitrogen richness of the food within the limits in which it may vary in infant dietetics. The creatinine eliminated is of exclusively endogenous origin; the creatine has a double origin: endogenous and exogenous. The exogenous fraction of creatine is variable in different patients. It is to be determined by protein inanition tests. Garot calls attention to the characteristic modifications undergone by the excretion of creatinic bodies in infantile denutrition. In cases of hypo-athrepsia of the first degree, and in a number of those of the second degree, it maintains an almost normal value with a slight tendency to decrease, the tendency bearing only on the creatine. In other cases of hypo-athrepsia of the second degree, and of athrepsia, the excretion of creatinic bodies is considerably diminished. The decrease concerns both the preformed creatinine and the creatine, but the latter predominantly. The subdivision of denutrition in nurslings into hypo-athrepsia of first and second degrees and athrepsia does not indicate the chronological order in appearance of the nutritional alterations. From the physiologic point of view, the denutrition seems to evolve in two phases, of which the second is realized only in the course of second degree hypo-athrepsia. Its appearance cannot be put into relationship with a definite percentage of weight deficiency. During the first physiologic phase of denutrition, the extent of exchanges (of which the total creatinine is a good measure) does not seem altered. In the course of the second phase there seems to be a serious decrease in thermogenesis. The almost complete disappearance of creatine in the urine in the course of the second stage of denutrition prevents considering serious hypo-athrepsia as simple inanition since progressively increasing creatinuria is the most constant evidence of nutritional deficiency. The author believes that this extensive research further weakens the opinion of those who consider creatinic excretion as proportionate to muscular mass.

Policlinico, Rome

37: 309-360 (July 1) 1930. Medical Section

*Functioning of Bone Marrow in Pulmonary Tuberculosis. R. Gosio and A. di Natale.—p. 309.
Plasmatic Colloid Lability in Tuberculosis. G. F. Capuani.—p. 329.
Changes in Blood Sugar Index Induced in Hyperglycemic and Glycosuric Persons by Minimal Doses of Salts of Oligodynamic Metals. G. Sabatini and M. Pazzi.—p. 338.
Pancreatic Secretions Following Injection of Peptones. R. Carusi.—p. 344.
Pulpitis Due to Streptococcus Viridans; Endocarditis Lenta; Periarticular Fibrous Nodules. M. Scelba.—p. 353.

Functioning of Bone Marrow in Pulmonary Tuberculosis.—Gosio and di Natale endeavor to construct for each patient on the basis of clinical and laboratory observations the nature of the functioning of the bone marrow at the time of observation, and seek to determine to what extent the functioning may be due to the specific morbid factor and how far it may be dependent on other conditions. In evaluating the functional power of the bone marrow, two principal factors must be taken into account: (1) the soil on which the infection develops, which may influence diversely the type and the duration of the reaction, and (2) the fact that a given hematologic symptom may intervene at an absolutely different time from the clinical evolution and hence assume a diverse significance and importance if associated with factors that may have contributed to its causation. Neglecting these factors that delimit the significance of the hematologic examination, they considered the percentages, deriving them from the examination of 200 patients affected with the most diverse clinical types of pulmonary tuberculosis.

37: 981-1016 (July 7) 1930. Practical Section

Six Carriers of Endameba Histolytica in Family of Ten Members. T. Dell'Aquila.—p. 981.
*Perforation of Uterine Artery in a Parametric Purulent Sac. G. Inglima.—p. 983.
Rupture of Extra-Uterine Pregnancy: Case. A. Barbieri.—p. 985.

Perforation of Uterine Artery in a Parametric Purulent Sac.—Inglima reports an interesting case of rupture of an extra-uterine pregnancy, bringing out the diagnostic difficulties of similar cases and emphasizing that it is the duty of the physician to hospitalize such patients at once.

37: 1017-1052 (July 14) 1930. Practical Section

Heterologous Implants of Suprarenals in Rabbits. N. V. Bedarida.—p. 1017.
*Grave Syncope Due to Pneumothoracic Insufflation, Controlled by Double Intracardiac Injection of Epinephrine. G. Bonanno.—p. 1019.
Three Hundred Appendectomies Without Burial of Stump. B. Masci.—p. 1021.

Syncope Due to Pneumothoracic Insufflation, Controlled by Intracardiac Injection of Epinephrine.—Bonanno has found the endocardiac injection of a 0.1 per cent solution of epinephrine always harmless and often effective. The method is especially adapted to syncope. In diseases that cause death through profound changes in the tissues, the intracardiac injection of epinephrine is not indicated. The procedure may be employed repeatedly in the same subject with impunity. It should be applied promptly as soon as there are signs of stoppage of the heart (within ten minutes). The technic of the puncture is simple and few instruments are required. It is preferable to apply the injection to the left ventricle. The method is destined to become widely used and to render ever increasing service, for which reason it should be available to every medical practitioner.

Rivista di Clinica Medica, Florence

31: 505-556 (May 15) 1930

Pseudoleukemic Lymph Node Tuberculosis: Case. F. Schupfer.—p. 505.
*Pressure Variations in Brachial Artery Under Influence of Prolonged Compression with Arm Sphygmomanometer. F. Forti.—p. 517.
Acute Erythremic Normoblastic Myelosis with Reticulo-Endotheliosis. P. Canale.—p. 530.

Pressure in Brachial Artery Under Influence of Prolonged Compression with Sphygmomanometer.—Forti recalls that, in determining arterial pressure, in many examinees the sphygmomanometric values obtained at the first trial are modified (usually lowered) at later trials. In explanation of this fact, various factors have been invoked, some of a general and some of a local nature. The latter may act in various ways: through the reflexes produced as a result of stimulation of the compressed nerve trunks; through the influence exerted by the arm band on the walls of the artery, and, finally, by disturbances of circulation induced below the arm band by the interruption of the blood stream. In his experiments the author used the Riva-Rocci apparatus. The results of the experiments confirm the existence of pressure modifications due to the influence of the sphygmomanometer. He noted that such modifications were not only downward, as has been more commonly noted, but also upward with greater frequency than has been reported. A knowledge of these facts, he thinks, has a certain interest from a practical point of view, as it aids in the evaluation of the data of clinical and experimental studies on arterial pressure. The differences do not usually exceed from 5 to 10 mm. of mercury, but occasionally they amount to 15 and even 20 mm. The author emphasizes that it is well to take account of these possibilities in order to avoid drawing wrong inferences from erroneous observations.

Rivista di Patologia e Clin. della Tubercolosi, Bologna

4: 441-532 (June 30) 1930

Filtrable Tuberculosis Virus. A. Sega and A. Brustolon.—p. 441.
Symptoms and Pathogenesis of Total Mediastinal Hernia. F. Costanzi. —p. 458.
*Tuberculosis Diffused to Abdominothoracic Lymphatics with Lymphatic Propagation from Tracheobronchial Lymph Nodes to Lungs and Pleuras. V. de Benedetti.—p. 465.
*Value of Intracutaneous Reaction to Resorcinol for Early Diagnosis of Pulmonary Tuberculosis. G. Marcialis.—p. 476.
Acoustic Theory of Physiologic Tracheobronchial Respiration. C. Minerbi. —p. 489.
Thoracic Cutaneous Telangiectasias in Tuberculous Persons. C. Alessandri.—p. 502.

Tuberculosis Diffused to Abdominothoracic Lymphatics.—De Benedetti describes a case of genital tuberculosis with invasion of the abdominothoracic lymph nodes and spread of the virus to the tracheobronchial lymph nodes and a case of diffuse pleuropulmonary tuberculosis with probably intestinal port of entry. He discusses briefly the conceptions of Costantine and of the French school on the importance of the hilus in the genesis of pulmonary tuberculosis in the adult. He regards as justified the tendency of certain modern phthisiologists to raise objections to the theory of direct infection and superinfection from the alveolus, holding that the cases reported constitute exceptional clinico-anatomic observations.

Intracutaneous Reaction to Resorcinol for Early Diagnosis of Pulmonary Tuberculosis.—Marcialis concludes that the intracutaneous reaction to resorcinol will not serve in clinical practice for the early diagnosis of pulmonary tuberculosis, not only because it gives negative results in a notable percentage of cases in which there are well founded reasons to consider the organism infected, but, above all, because the outcome is negative also in many cases in which the tuberculous infection is clinically confirmed, while the reaction is sometimes positive in cases in which no anamnestic, clinical or roentgen data point to the presence of tuberculosis.

Archivos de Cardiología y Hematología, Madrid

11: 257-304 (June) 1930

*Arterial Tension in Chronic Pulmonary Tuberculosis. C. Díez Fernández and R. Navarro Gutiérrez.—p. 257.
Effects of Zinc Phosphide on Fibrinogen Content of Blood. F. Más y Magro.—p. 266.

Arterial Tension in Chronic Pulmonary Tuberculosis.—Díez Fernández and Navarro Gutiérrez determined the arterial tension of 180 patients with chronic pulmonary tuberculosis, observed for more than one year. The patients were grouped, first, according to their age into three subgroups (less than 20 years, from 20 to 40 years and more than 40 years), secondly, according to the duration of the tuberculosis (less than one year, from one to three years and more than three years), and, thirdly, according to the anatomic and clinical forms of tuberculosis (fibrocaseous, fibrous and hilar and exudative). The authors consider that more important than the determination of the condition of the arterial tension is the determination of the modifications of the tension curve, especially when the modifications are observed over a long period of time. They present their results in tables and conclude that there is no proof that there exists a tensional difference in either arm in relation to the localization of the tuberculous lesion. It has not been proved that hypotension is more frequent in young persons than in older ones. The evolution of the arterial tension in pulmonary tuberculosis is of only relative value. It is of value only when associated with the clinical symptoms. Pneumothorax and phrenicectomy do not modify the tensional curve.

Semana Médica, Buenos Aires

37: 1545-1620 (June 19) 1930. Partial Index

Results of Nephropexy (Marion) as Observed by Pyelography. J. Salleras.—p. 1545.
*Experimental Ossification: Formation of Bone in Connective Submucous Tissue of Renal Pelvis. O. F. Mazzini.—p. 1581.
*Varicocele: Technic of Surgical Treatment. J. H. Macome.—p. 1587.

Experimental Ossification.—Mazzini's experiments confirmed those of Sacerdotti and Fratin, which prove that bone is formed at the expense of the connective submucous tissue of the renal pelvis of a rabbit after a lapse of time during which a ligation of the vessels of the hilus of the kidney has been done, without any participation of the osteogenic tissues. The author ligated the pedicle of the left kidney of two rabbits. The animals were killed four months later. In one of the animals the difference between the right and left kidneys was more marked than in the other animal (10 and 2 Gm. and 13 and 5.5 Gm., respectively).

Varicocele: Technic of Surgical Treatment.—Macome says that the operations suggested by del Valle, by Ivanissevich and by Posadas for the surgical treatment of varicocele are the most simple and, if properly used, they yield the best results. The author describes the technic of the three operations. Regardless of the surgical method used, the hygienic treatment and the avoidance of venereal excesses and of constipation are important. In cases of ectasia of the anterior or large part of the venous plexus of the cord with marked ptosis of the testis, the operation of del Valle should be used. When ptosis of the testis is insignificant and the varicocele is of a funicular type and there is reflux, the operation of Ivanissevich should be preferred. When there exists visceral total ectasia of the venous plexus of the cord associated with marked ptosis of the testis, the operation of Posadas is indicated.

Siglo Médico, Madrid

85: 661-688 (June 21) 1930

*Quinine Allergy. S. Larregla.—p. 661.
Laryngotracheal Complication in Ozena: Local Application of Cajuput Oil. G. Uruñuela.—p. 664.

Allergy After Treatment with Quinine Sulphate.—Larregla reports the case of a girl, aged 16, who had influenza. Among the drugs administered was quinine sulphate. Soon afterward the temperature rose to 102.2 F. and the following day the patient had fever, headache and photophobia, with a generalized rash. The condition was considered to be an allergic reaction to quinine. The immediate suppression of the drug and the administration of calcium chloride and of a preparation of fish albumins caused the disappearance of all the symptoms, and the recovery after a few days. Idiosyncrasy to quinine was strongly suspected when the patient's history showed that one year before she had had an infection (diagnosed as intestinal infection) in which quinine was administered. During this infection the patient had developed a protracted typical dermic exfoliation associated with edema, vomiting, constant and high fever, albuminuria and great emaciation. Some time after recovery the reaction to quinine was tested. A scratch was made on each forearm. In one of the scratches a drop of physiologic solution of sodium chloride was placed and in the other a drop of quinine sulphate. The first scratch remained unchanged whereas the second scratch after one hour presented a marked redness, which persisted for several days. The father of the patient had an idiosyncrasy to tincture of iodine. The author advises that one have in mind such cases of allergic reaction when this condition appears during the evolution of a disease in which chemotherapy is used.

85: 689-716 (June 28) 1930

*Problems Related to Babinski Reflex. C. Juarros.—p. 689.
Treatment of Imminent Abortion. J. Lacasa Val.—p. 694.

Problems Related to Babinski Reflex.—To prove the diagnostic value of the Babinski reflex, Juarros made observations in three groups of children: 200 new-born infants during the first hour of life; 150 backward children of a psychiatric school of abnormal children (with oligophrenia, but without focal or cerebral lesions); and 200 infants aged 1 week. He concludes that there are two types of Babinski reflex, the physiologic reflex and that of a peripheral origin. Whenever a positive Babinski reflex is elicited, one should think of the possibility that the reflex may have a peripheral origin. The physiologic Babinski reflex may exist in normal new-born infants with no disturbances of the nervous system. Its presence in them, however, is not constant. The presence of the reflex during childhood is not an indication of mental backwardness. It is probable that the so-called physiologic Babinski reflex is governed by factors similar to those which govern the reflex of peripheral origin; that is, the presence of a motor disequilibrium between the flexor and extensor muscles. The disequilibrium may have been determined during intrauterine life, by the situation of the toes of the fetus in the

uterus. The upright position does not play a part in the production of the physiologic Babinski reflex, which is not caused by an incomplete development of the pyramidal tract or by a predominant influence of extrapyramidal origin. The method and conditions under which the reflex is elicited may have an influence on its presence or absence. The diagnostic value of the Babinski reflex should be revised. The reflex may appear in some patients without lesions of the pyramidal tract and may be absent in others in whom pyramidal disturbances are obvious.

Beiträge zur klinischen Chirurgie, Berlin

149: 501-676 (June 14) 1930

Crossed Dystopy of Kidney. F. Landois.—p. 501.
*Nephrogenous Scoliosis. C. Blumensaat and F. Nestmann.—p. 508.
*Radical Operation for Carcinoma of Rectum. F. Dannheisser.—p. 525.
*Surgical Treatment of Habitual Dislocation of Shoulder. L. Oetiker. —p. 537.
Principles of Treatment of Fractures. F. O. Mayer.—p. 575.
Traumatic Lesion of Normal Appendix Result of an Abdominal Injury. T. Ott.—p. 589.
Ultimate Fate of Bone Fragments in Springer's Operation. G. Epstein and J. Kasakevič.—p. 594.
*Mixed Tumors of Scalp. K. H. Erb.—p. 617.
*Iodine Disinfection of Skin: Twenty-Two Years' Experience with Grossich's Method. D. Curri.—p. 626.
Acute Invagination of Small Intestine in Childhood Caused by an Inverted Meckel's Diverticulum. S. Lenner.—p. 631.
Bilateral Resection of Frontal Bone as Avenue of Approach to Hypophysis Cerebri. A. Chiasserini.—p. 641.
Treatment of Furuncle, Furunculosis, Carbuncle and Sweat Gland Abscess. W. Himmelmann.—p. 652.
Bone Transplantation: Discussion of Problem on Basis of Histologic Examination of Albee's Bone Transplant. R. Böhmig.—p. 663.

Nephrogenous Scoliosis.—Blumensaat and Nestmann call attention to the fact that in most cases of kidney disease there results some scoliosis of the lumbar segment of the spinal column. In cases of renal calculus the curve is convex to the stone; in hydronephrosis, pyonephrosis, pyelitis, tuberculosis, paranephritis and mobile kidney it is concave to the lesion. In cases of tumor the direction of the scoliosis is variable. The authors prefer the term nephrogenous scoliosis to the older term nephritis scoliosis. In the stone cases it is the result of a protective action; in the hydronephrosis cases it is a mechanical result and in the remaining cases it is caused by the contraction of the muscles on the diseased side. These observations are believed to have not only diagnostic but also therapeutic value.

Radical Operation for Carcinoma of Rectum.—Dannheisser analyzes 180 cases. Ninety-nine were not operable. Treatment by radiation and by colostomy was given and the patients succumbed in from six to twelve months after the institution of the treatment. The remaining 81 patients were subjected to operation—27 amputations with sacral anus; 37 sacral resections; 6 Hochenegg operations; 11 abdominosacral resections. Twenty-four patients died shortly after the conclusion of the operation; 20 after leaving the hospital (16 from a recurrence); 37 are living, 7 still under observation, 3 with a recurrence. Cure after three years was observed in 40 per cent; after five years in 46 per cent. Of the healed sacral resection cases, 77 per cent of the patients have continence; 10 per cent have an intestinal fistula. From every point of view, the author prefers sacral resection to any other operative procedure.

Surgical Treatment of Habitual Dislocation of Shoulder.—Oetiker reviews the results of eleven cases in which he operated. He prefers plication of the capsule when no other lesions than the dislocation are present. He presents a splendid review of all such cases recorded in the literature since 1918.

Mixed Tumors of Scalp.—Erb reports a case of tumor of the scalp over the right parietal bone apparently caused by a trauma—a fall from a ladder. Histologic examination showed that it contained mucous membrane, cartilage, bone and numerous epithelial elements—adenomatous, cylindromatous and carcinomatous. Clinically, the tumor seemed to be of the benign variety. Some neuro-epithelial elements were also found. The author assumes that an embryologic rest consisting of epithelium and periosteum was the point of origin of the tumor.

Grossich's Method of Iodine Disinfection of Skin.—After twenty-two years' experience with this method, Curri concludes that it is far superior to any other method. He has employed it in 20,000 operations with invariably good results. He feels that the "urge" to discover newer and, possibly, better methods has led to failure to appreciate this method at its true value.

Deutsche medizinische Wochenschrift, Berlin

56: 1159-1202 (July 11) 1930

*Value of Scarlet Fever Vaccination. Schottmüller.—p. 1159.
Calmette's Vaccination and Fatalities in Lübeck. A. Ascoli.—p. 1160.
Size of Antitoxin Doses in Treatment of Diphtheria. F. Reiche and E. Reye.—p. 1162.
Are Acquired Qualities of Pathogenic Protozoa Retained During Passage Through Natural Host? C. Schilling and H. Schreck.—p. 1163.
Surgical Treatment of Hypertrophic and Pendulous Breasts. A. W. Meyer.—p. 1165.
*Double-Barreled Laryngeal Intubation Instrument for Filling Lung with Contrast Medium for Diagnostic and Therapeutic Purposes. A. Baisch. —p. 1166.
Utilization of Protein from Soy Beans and of a Soy Protein Preparation by Animals and Human Beings. J. Kapfhammer and H. Habs. —p. 1168.
Experiences of a Country Physician in Obstetrics. Knopf.—p. 1170. C'en.
Tribromethanol Anesthesia. F. Eichholtz.—p. 1172.

Value of Scarlet Fever Vaccination.—Schottmüller describes a scarlet fever endemic in a children's home in Hamburg, which was checked by vaccination. He points out that prophylactic active immunization with scarlet fever streptococcus toxin was first successfully employed by Gabritschewsky. Passive immunization with scarlet fever streptococcus immune serum gives immediate protection but is effective for only two weeks, whereas prophylactic active immunization becomes effective only after several weeks but after that gives protection for about two years or longer. By employing both these methods the spread of the endemic was prevented. The efficacy of the vaccination was also proved by Dick tests. In the conclusion the author states that immunity against the scarlet fever streptococcus, which is produced either actively or passively, protects primarily against an outbreak of the disease. But even during the beginning or toxic stage of scarlet fever the immune serum is effective. However, the second stage of the disease is not influenced by vaccination. The efficacy of active and passive immunization with products of the scarlet fever streptococcus proves that this specific streptococcus is the only cause of the disease.

Double-Barreled Laryngeal Intubation Instrument for Filling Lung with Contrast Medium.—The double-barreled laryngeal intubation instrument recommended by Baisch is a modification of O'Dwyer's tube. Following a description of the construction of the apparatus and the technic of its introduction, several case reports are given and illustrated with roentgenograms. Iodized sesame oil 40 per cent is the contrast medium most commonly used. The advantages of the double-barreled laryngeal intubation instrument are summed up as follows: 1. It involves no danger when used by the physician who knows the technic of intubation. 2. It is simple and the aid of a specially trained laryngologist is not necessary. 3. In children the filling of the lung by means of the double-barreled laryngeal tubes is the method of choice.

Deutsche Zeitschrift für Chirurgie, Leipzig

226: 1-163 (July) 1930

*Reinfusion of Blood Extravasated into Peritoneal Cavities. H. Heusser and H. Stössel.—p. 1.
*Inclusion of Nonabsorbable Suture Material in Healing Wound. A. Christ.—p. 13.
Toxic Adenoma of Thyroid. F. Merke.—p. 25.
*Postoperative and Experimental Tetany. A. Christ.—p. 34.
*Tuberculosis of Tongue. G. Nicolas.—p. 46.
Tabetic Laryngeal Crises: Surgical Aspects. L. Schiff.—p. 66.
*Experimental Tumors of Bladder. W. Schär.—p. 81.
Secretion and Resorption of Epididymis. M. Richard.—p. 98.
*Tuberculosis of Spleen. B. Cynman.—p. 110.
*Acute Atonic Dilatation of Stomach in Acute Infectious Diseases. M. Petitpierre.—p. 125.
Deep-Seated Stenosis of Duodenum: Result of Nontuberculous or Tuberculous Swelling of Lymph Nodes of Root of Mesentery. H. Wantoch. —p. 135.
Lymphadenitis Dissecans of Mesentery. M. Mesnik.—p. 140.
*Formation of Tumors in Hernial Sac. M. Richard.—p. 146.
Gas Gangrene in Nephrectomy Wound in Case of Tuberculous Pyonephrosis. R. Howald.—p. 152.
Dislocation of Peroneus Tendons. M. Richard.—p. 156.
Effect of Roentgen Rays on Urea and Ammonia Contents of Blood. H. Wantoch.—p. 160.

Experimental Study of Blood Extravasated into Body Cavities.—The blood examined by Heusser and Stössel was taken from the peritoneal cavity of rabbits. It is said that macroscopically it appeared to be normal. Slight degrees of hemolysis could not be detected with the eye; high degrees were easily detected. Such blood contains many clots. The blood that is obtained by filtration of the whole mass should not, on the whole, clot further, but it cannot be stated absolutely that this is the case, because cases of clotting are on record. Hence, care should be taken in this regard when such blood is reinjected into the circulation. It was also determined definitely that, while blood was flowing into a body cavity, resorption of the exudate was also taking place. The corpuscular elements are greatly diminished in extravasated blood; likewise the number of leukocytes and the hemoglobin. The resistance of the erythrocytes is diminished considerably, a point to be borne in mind when one wishes to reinject blood extravasated into a body cavity. This procedure is in need of much more investigation before it can be stated definitely that it has a place in therapeutics.

What Happens to Suture Material?—Christ has made a histologic and bacteriologic study of the fate of various kinds of suture material in several hundred aseptic operations for goiter, hernia and loose joint cartilages. He found that every kind of material yielded similar results depending entirely on its asepsis, the amount of suture material embedded, the possibility of secondary infection, the local tissue reactions and the general reactions of the individual. Selection of suture material should be made on the basis of how easily it can be sterilized and handled; its strength and elasticity. Silk and linen is the equal of any suture material, and preferable to any other. So-called suture infections may be prevented by a perfect aseptic operative technic; complete asepsis of the material to be used; absence of infective foci in the tissues surrounding the field of operation and "atraumatic" postoperative treatment. This is especially applicable to operations on the thyroid. Suture of the capsule should be made to obviate the flow of secretion into the wound afterward, and prompt evacuation by puncture of hematomas, serous effusions and thyroid secretions should be performed.

Postoperative and Experimental Tetany.—Christ asserts that tetany is a general intoxication. The appearance in the blood of noxious substances the result of faulty metabolism leads to a lowering of the blood calcium and that is the direct cause of tetany. The severity of the tetany is dependent on the fall of the calcium curve. Therefore, the author recommends that, in cases of human tetany, viosterol (vitamin D) be administered in sufficient doses. Acute and chronic forms also call for the administration of organ extracts and calcium. In the acute cases it is important to give large doses of calcium. Blood transfusion is indicated. Milk diet, vegetables and the avoidance of meat foods is essential. Frequent examinations of the calcium curve are of great value in regulating the treatment.

Tuberculosis of Tongue.—This review of 217 cases by Nicolas shows that tuberculosis of the tongue occurs more often than does tuberculosis of any other structure of the mouth, including the tonsils. The left side is the usual seat of the disease; men are affected more often than women, in the ratio of about six to one. The disease is always secondary, the infection coming through the blood or lymph stream. Primary, exogenous infection is exceedingly rare. The only treatment is excision and cauterization. The prognosis is dependent on the general condition of the patient, the stage of the primary focus, usually in the lung, and the course of the primary disease.

Experimental Production of Bladder Tumors.—By means of inhalation of aromatic amino preparations, especially naphthylamine, Schär succeeded in producing experimental carcinomas of the bladder.

Primary Tuberculosis of Spleen.—Cynman reports a case of primary tuberculosis of the spleen, without a tuberculous focus elsewhere in the body, in which the spleen was removed. Three and a half years later there was no evidence of tuberculosis anywhere.

Acute Dilatation of Stomach.—Petitpierre calls attention to the fact that not only may dilatation of the stomach occur after operation, combined with general anesthesia, but that it is not entirely an infrequent occurrence in cases of acute infectious disease. He cites a case of pneumonia in which this complication was noted on the fifth day of the disease. The symptoms led to the suspicion that pneumococcus peritonitis or a perforated appendix was responsible. Neither was found at operation; instead the stomach was greatly enlarged and dilated. It was punctured and about 2.5 liters of fluid was removed. The patient died the following day.

Tumor Formation in Hernial Sac.—In Richard's case numerous adenocarcinomatous masses were found on the wall of the sac and the serosa of the portion of the sigmoid that was lying in the sac. The patient died four months after the operation in a state of cachexia but free from symptoms of obstruction of the intestinal tract. A case of primary fibroma of the mesentery contained in a hernial sac is also reported.

Medizinische Klinik, Berlin

26: 1027-1064 (July 11) 1930

Pathogenesis of Tuberculosis in Isolated Organs. Anders.—p. 1027.
Cholelithiasis: Newer Diagnostic Methods, Especially Roentgenoscopy. R. Schmidt.—p. 1029. C'en.
*So-Called Acetonemic Vomiting in Children. Brückner.—p. 1035.
Tribromethanol Twilight Sleep During Parturition. E. Martin.—p. 1036.
Cure of Valvular Pneumothorax by Means of Phrenic Exeresis. R. Weiss.—p. 1037.
Pyonephrosis with Peculiarly Stratified Faceted Renal Calculi. E. Saupe.—p. 1038.
Brucella Abortus Infection in Man. F. Hagemeister.—p. 1039.
Actinomycosis of Both Uterine Tubes. H. Sprengell.—p. 1040.
*Perforation of Ulcerated Colon Caused by Contrast Medium. L. Kaulich.—p. 1042.
Disturbances in Blood Pressure Regulation in Exophthalmic Goiter. E. Baráth.—p. 1043.
Examination of Cerebrospinal Fluid by Means of Shellac Reagent. H. D. von Witzleben.—p. 1045.
Diagnostic Difficulties in Diseases of Abdominal Organs: Diabetic Coma and Peritonitis. G. Scherk.—p. 1046.

So-Called Acetonemic Vomiting in Children.—Brückner points out that vomiting is a frequent symptom in children. There is hardly any children's disease during which it may not occur. However, small children and those of early school age occasionally show a pathologic condition in which vomiting is the main symptom. This so-called acetonemic vomiting is most frequent in neuropathic children aged between 3 and 7 years. In most cases, attacks of vomiting recur periodically. They develop after an indisposition lasting several days or develop suddenly after a psychic shock. The vomit consists at first of fragments of food and later of a greenish watery substance. The vomiting increases when food intake is attempted, but it also continues when the child does not eat. The children lose weight rapidly, dark rings show around the eyes, the tongue and skin are dry, and the turgor is reduced. The respired air has the odor of fruit. The abdomen is flat, the liver does not show marked enlargement and the temperature may show a slight increase, but the pulse is usually normal. The quantity of urine is reduced and it contains acetone, beta-oxybutyric acid and diacetic acid but neither protein nor sugar. The elimination of ammonia is increased and the alkali reserve in the blood plasma is reduced as a sign of existing acidosis. The blood picture does not show characteristic changes. The sensation of pressure and abdominal pains are muscular pains caused by the effort of vomiting. After two or three days the vomiting and the acetonuria decrease and the appetite increases. The opinions concerning the etiology of the disorder are still divided. The author reviews several theories and comes to the conclusion that it is a neuropathic disorder, probably due to a disturbance in the nervous regulatory apparatus for the carbohydrate metabolism. In the diagnosis of the condition the differentiation from appendicitis and from basilar meningitis is of primary importance. The vomiting and the odor of the respirated air are decisive for the diagnosis. In acetonemic vomiting the abdomen is flat and, although painful, a special point of pressure and muscular tension are absent. The voidance of urine and the lifting of the right leg is likewise painless during acetonemic vomiting. The blood picture may be an aid for the differential diagnosis, in that leukocytosis is absent in acetonemic vomiting. For the diagnosis of basilar meningitis the development of rigidity of the neck, changes in the pulse and Brudzinski's and

Kernig's signs should be awaited. For the treatment of acetonemic vomiting the author recommends the administration of carbohydrates in the form of sweetened fluids. As soon as the vomiting stops it is advisable to give a paplike diet rich in sugar. If the vomiting and the dehydration are especially severe, dextrose solution should be administered either in the form of enemas or by subcutaneous or intravenous injection.

Perforation of Ulcerated Colon Caused by Contrast Medium.—That roentgenoscopic examination of the intestine with the aid of a contrast medium is not an entirely harmless procedure is proved by Kaulich. He reports the clinical history of a woman, aged 57. An operation revealed that a portion of the barium preparation, which twenty-seven days previously had been administered by mouth, had developed into a fecal concretion of about the size of a fist. It was lodged in the sigmoid flexure and had caused symptoms of intestinal obstruction. When a tumor of the colon was suspected, roentgenoscopic examination was again thought necessary and the barium preparation was introduced through the rectum. During the administration of the barium enema the ulcerated intestinal wall perforated above the fecal concretion, as a result of the increased pressure due to tenesmus. Through the opening of the perforation the barium preparation entered the abdominal cavity. An operation was performed immediately. A preternatural anus was made and the abdomen was irrigated. In order to prevent such accidents the author stresses the following points: 1. It is necessary that the anamnesis and the status of the patient be known before the rectal administration of the contrast medium is begun. 2. In cases of bleeding ulcer of the colon a clyster examination is not advisable. 3. The quantity of the contrast medium should not be more than 1 liter. 4. The filling of the colon should be done from a height of not more than 50 cm. 5. Whenever the patient complains of increasing pains or pressure, the administration of the contrast medium should be discontinued.

Nederlandsch Maandschrift voor Geneeskunde, Leyden

16: 709-782, 1930

Encephalomeningitis Due to Unknown Cause. C. de Lange.—p. 709.
Skin Tumors and Myeloid Reaction in Blood: Case. J. B. S. Schwab.—p. 719.
*Congenital Stenosis of Digestive Tract. B. E. J. H. Becking.—p. 731.
Rickets and Ergosterol. N. Speelman.—p. 750.

Congenital Stenosis of Digestive Tract. — Becking describes three cases of congenital stenosis of the digestive tract recently observed in infants at the Kinderziekenhuis in Utrecht. In the first infant the physician found in the right abdomen a suspicious resistance and sent the child to Utrecht with the tentative diagnosis "invagination." The peritoneum was opened and the mass of the intestine seemed incoercible. There was fluid in the abdomen and the intestine was exceedingly red. No invagination was found. The swelling was felt at first, but afterward it could not be found. The abdomen was closed. The child died the next morning. The surgeon broke open the sutures and found a large portion of the small intestine in a state of severe hemorrhagic inflammation. Above Bauhin's valve, in the ileum there was a highly stenosed portion, about 2 inches long. At one point, the intestine was almost broken through. The mystery of the swelling in the right abdomen was not solved. The second infant, when 14 days old, became highly constipated and had spells of vomiting. The child died six days after admission to the hospital. Necropsy revealed a moderate dilatation of both ureters and a diverticulum of the duodenum. Not only the stomach but also the first portion of the duodenum were highly inflamed, and where the duodenum became thin there was a sort of valve that made passage of intestinal contents to the stomach easy, whereas passage of food from the stomach to the intestine was difficult. Under certain conditions, food could find its way through, which explains the regular, normal stools. In the third infant, vomiting spells set in after six weeks. Changing the diet frequently, the mother worried along with the child until it was 9 months of age. The child was admitted to a hospital and a roentgenogram revealed a stenosis of the esophagus about 2 cm. above the diaphragm. With an esophagoscope the examiner discovered 20 cm. from the teeth a diverticulum of the esophagus, with an opening the size of the head of a pin. By making a gastric fistula (Witzel method) it became possible to feed the child better. But, at the end of seven weeks, the child had gained only 1,140 Gm. in weight. The hemoglobin content of the blood had advanced from 38 to 51, but he still looked pale and poorly. Five months after the operation the weight had come up from 6,430 Gm. to 8,450 Gm. The child is still living, but it is impossible to give it through the slender tube all the food it needs. The author discusses at length congenital diverticula and those arising post partum.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

74: 3509-3612 (July 12) 1930

The Power of Recovery. C. de Lange.—p. 3518.
Simple Oxidase Reaction for Blood Preparations. R. Roelofs.—p. 3524.
*Epidemiology of Poliomyelitis in the Netherlands. J. T. Terburgh.—p. 3528.
Poliomyelitis Anterior Acuta. F. S. van Bouwdijk Bastiaanse.—p. 3544.

Epidemiology of Poliomyelitis in the Netherlands.—Terburgh reports the incidence and the mortality of poliomyelitis in the Netherlands during the period 1924-1929. During the first five years the number of cases reported did not exceed 75, but in 1929 it was 507 with a mortality of 15.6 per cent. During the first years after cases of poliomyelitis became notifiable (Aug. 30, 1923), there were no doubt more cases than the statistics show. The number of deaths is evidently more complete than the number of cases. The mortality rate of 15.6 per cent recorded for 1929 is not excessively high—not much higher than the average mortality reported by the health section of the League of Nations (from 12 to 13 per cent).

Finska Läkaresällskapets Handlingar, Helsingfors

72: 511-606 (July) 1930

*Liver Diet and Reticulocyte Reaction in Simple Anemia. J. Wahlberg.—p. 511.
*Coxa Vara and Internal Secretion. E. Nyberg.—p. 537.
*Sarcoma Following Roentgen Treatment of Tuberculosis of Joints. B. Backlund.—p. 554.
Effect of Psychic Condition on Calcium Content of Blood. M. C. Ehrström.—p. 571.

Liver Diet and Reticulocyte Reaction in Simple Anemia.—Wahlberg reports nineteen cases of simple anemia. In nine out of fifteen liver therapy was followed by improvement, but in only three out of thirteen cases was the effect superior to that of arsenic and iron, while seven reacted more favorably to arsenic and iron. The comparatively good effect of liver therapy in chronic posthemorrhagic anemias and other chronic anemias with weak regenerative power, noted also by Pal, Vaughan and Gram, point to a stimulation of regeneration in certain cases of simple anemia, although in far less degree than in pernicious anemia. In simple anemias also the reticulocyte reaction is of practical value as the first sign of beginning improvement.

Coxa Vara and Internal Secretion.—Two of Nyberg's cases of coxa vara of adolescence showed no evidence of abnormality of internal secretion as a basis for the bilateral pathologic condition, but the third was apparently a typical instance of adiposogenital dystrophy. Tests of the basal metabolism, calcium content of the blood and renal function gave normal values; a dextrose tolerance test revealed a pathologic blood sugar curve.

Sarcoma Following Roentgen Treatment of Tuberculosis of Joints.—In Backlund's patient with disease of the knee joint, diagnosed as tuberculous, since her eleventh year, intensive irradiation for two years, begun at the age of 34, resulted in considerable improvement for five years, when the symptoms became increasingly aggravated. These were atrophy of the skin and telangiectasis and on the inner side of the knee a softer, fluctuating portion, which was excised. Microscopic examination disclosed recent spongy connective tissue, osteoid tissue, concentrically arranged hyalin formation, and spindle cell sarcoma. Removal of a pea-sized tumor that had developed in the same place ten months later was followed after seven months by a second tumor, necessitating radical intervention. Both were spindle cell sarcomas. After another six months amputation was done, as the whole medial portion of the knee was destroyed by a spindle cell sarcoma. Half a year later there were signs of pulmonary metastases. The case was found to agree with eleven others in the literature in which sarcomatous changes after roentgen treatment are ascribed to roentgen injury, although the tuberculosis cannot be excluded as a contributing factor.